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Grayloc® Seal Static Tests*

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Grayloc® Seal Static Tests*

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Abstract

A series of evaluation tests was performed on Grayloc® seals. Helium service and standard seals, size 292, were used. Measurements were made of axial force and motion, diameter, hoop and axial strain, and helium leak rate. Leak rates were in the 10^{-6} atm cc/s range for the helium service seals. Pretest analytical calculations agreed reasonably well with measured makeup forces and deflections.

*This work supported by the U. S. Department of Energy under Contract No. DE-AC04-76DP00789.

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Summary

Sandia National Laboratories was assigned the task of designing a spent fuel cask for the Clinch River Breeder Reactor. As a part of this task, a commercially available seal ring, the Grayloc, patented by Gray Tool Company, was examined for possible use as the cask's primary sealing element.

An analytical model of the seal was developed by using a modified version of the computer code PLAST. Runs were made to calculate, based on several values of the coefficient of friction, axial force, seal deflection, and seal and seat strains as a function of seat motion.

A fixture was designed and built to test full-size seals, 743 mm (29.25 in.) ID. Axial force and motion, seal deflection and strains, and helium leak rates were measured on several seal rings, but not all of the measurements were made on each seal. Although some difficulties were encountered with fixture design, two types of seals, the standard and a physically interchangeable version designed specifically for helium service, were successfully tested. Main conclusions, based on the test results, are (1) that the helium service seals usually have a leak rate in the 10^{-6} atm cc/s range and (2) that the analytical model adequately describes makeup force and deformation with a coefficient of static friction between 0.0 and 0.1.

Grayloc® Seal Static Tests

Introduction

Background

The US Department of Energy (formerly the US Energy Research and Development Administration) asked Sandia National Laboratories to provide the design for a spent fuel shipping cask for the Clinch River Breeder Reactor. One of the problems involved in the design work was to select a sealing element for openable portions of the cask and to verify the performance of this seal under normal and accident conditions. The seal element selected was the Grayloc® described below.

Grayloc Seal Description

The Grayloc seal is a patented design of the Gray Tool Company and consists of a ring with a T-shaped cross section. The vertical bar corresponds to the main structural rib, which also acts as a motion stop. The crossbar corresponds to two flexible arms which make contact with an upper and lower hub. Sealing is accomplished by axial compression of the two parts which causes plastic deformation of the arm at the contact points. Figure 1 shows a sketch with the pertinent parts labeled.

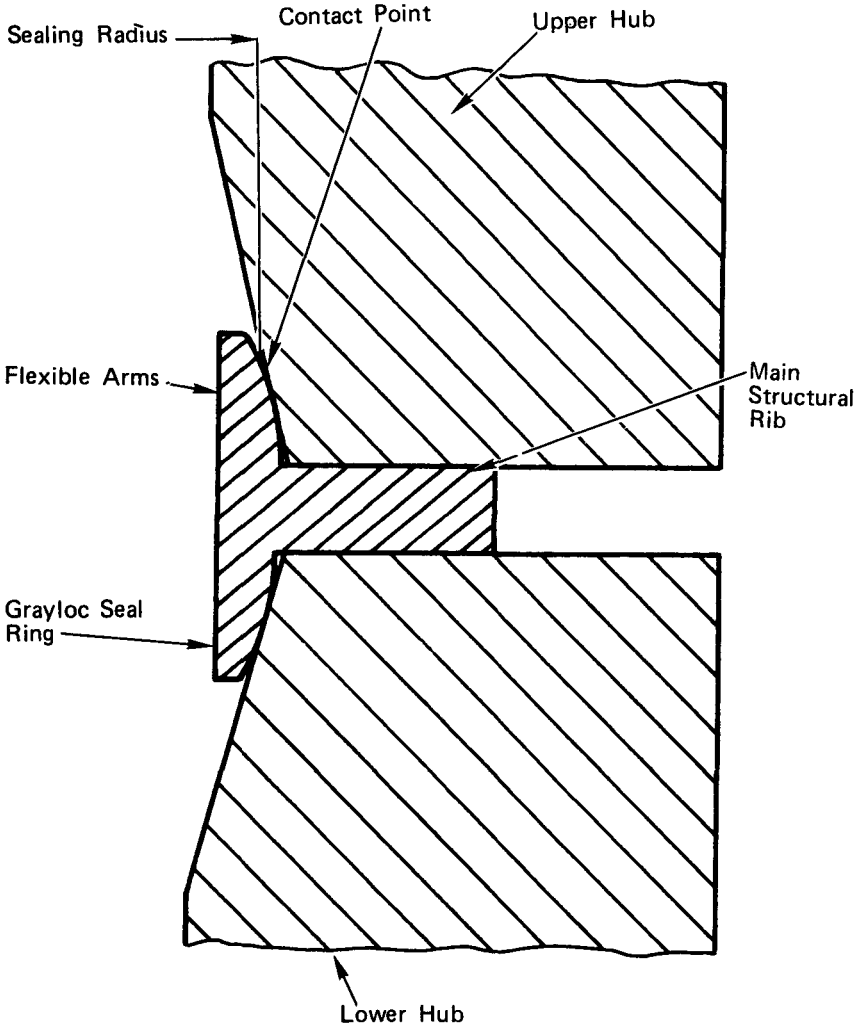


Figure 1. Cross Section of Grayloc® Seal Ring and Mating Hubs

Previous Work

An analysis[1] of the Grayloc seal was made using the computer code PLAST.[2] The seat/seal ring assembly was modeled as a rigid seat with an elastic-plastic seal ring. This model permitted the analysis to include the effect of friction and the development of plastic deformation at the contact point and throughout the ring. Calculated forces required to seat the ring for various values of the coefficient of friction were presented in Reference 1. The model showed that only small plastic strains were present over most of the cross section, which suggests that the rings should be reusable. Also included in Reference 1 was a proposal for a test program to provide an experimental evaluaton of the seal capabilities.

In addition to the analytical effort, a metallurgical examination of the seal material was made, and the results were published in Reference 3.

Static Test Program

Objective

A test program was initiated[1] to gain information on the following parameters for the Grayloc seal:

- Conditions and limitations required for maintaining sealing,
- Effects of loading-unloading cycles on seal leakage, and
- Accuracy of analytical predictions for static loading.

This information is needed to form a basis for predicting sealing ability and life under normal and accident conditions.

Test Fixture

Design

The fixture for these tests was furnished as described in Reference 1. Figure 2, SNL Drawing S17765, shows the major features of the fixture: the Grayloc seal, upper and lower hubs with removable domes which form the pressure chamber, three screw jacks (located 120 degrees apart) with motorized drives which apply the loads to the seal, and the three load cells which measure the loads. Figures 3 and 4 are photographs of the assembled test setup.

Some problems were encountered with the fixture design. These are described later.

Secondary Seal

To perform leakage tests with a helium mass spectrometer, it is necessary to be able to hold a vacuum of about 1×10^{-4} Pa (7.5×10^{-7} Torr) on one side of the seal. The preferred side is that side which is normally at the lower pressure (in this case, the outside). The method chosen to form the vacuum chamber was to use a circular ring with an H cross section with two 7.0-mm (0.275-in.) thick O-rings as the sealing elements. This ring surrounds the Grayloc rib, and the O-ring seals mate with the hub surfaces. Figure 5 shows a cross-sectional sketch of the installation. Some difficulty, described later, was encountered in positioning the secondary seal assembly and with the force required to compress the O-rings.

Seal Rings

Five standard "oil-field" Grayloc seal rings (seals 1 through 5) were ordered for these tests.[1] Two additional rings machined and plated specifically for helium service were also ordered (seals 6 and 7), and one of the original five seals (seal 5) was returned to Gray Tool Company for rework into the helium service configuration. The five standard seals are size 292 (29.25 in. ID, 17-4 PH steel, stock #72936) and the helium seals are marked "size 292, AISI 630 steel, stock #123910." All seven seals were factory coated with an MoS_2 compound.

Instrumentation

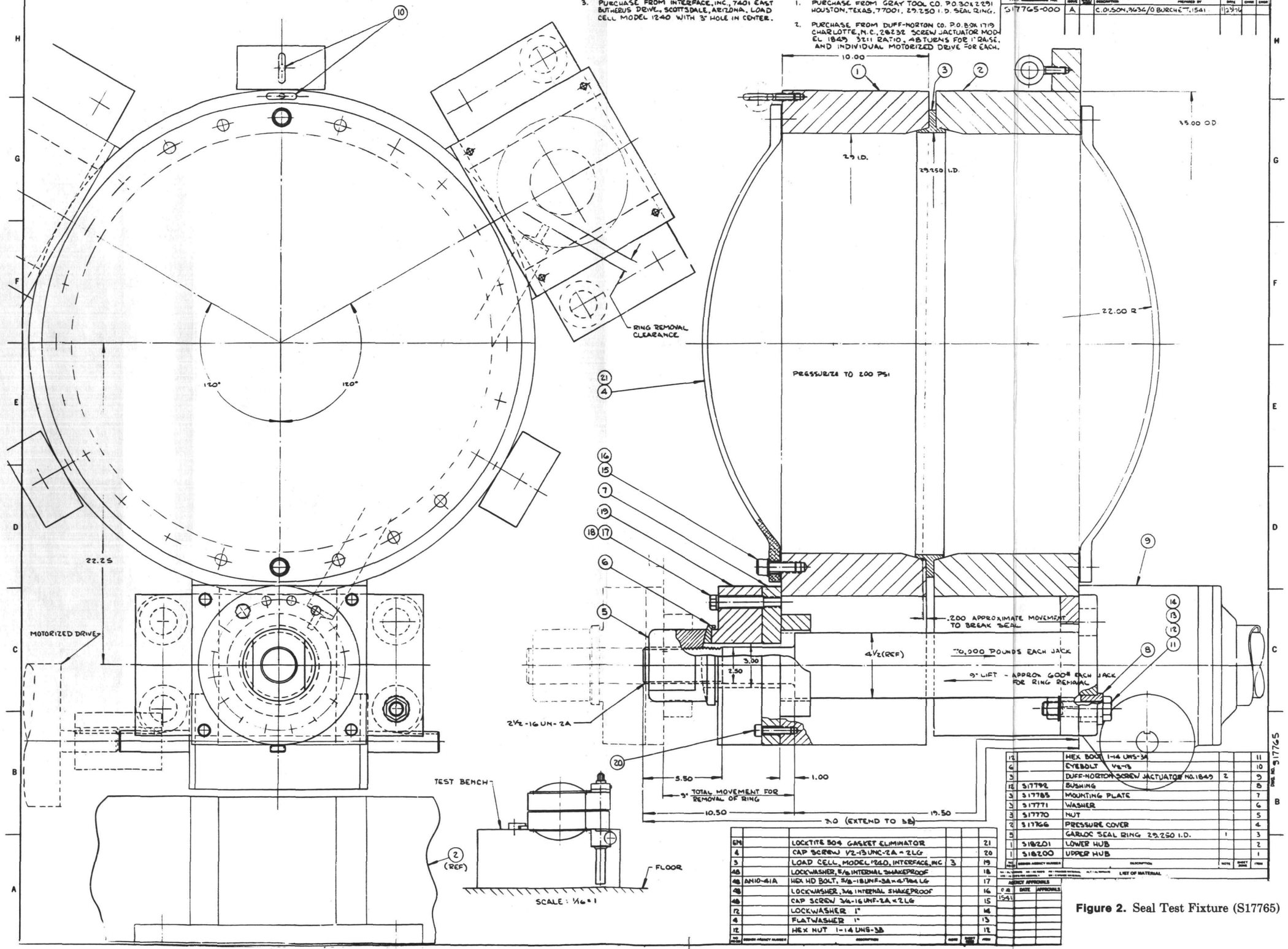
Strain

Biaxial strain gages, BLH type FABX-12-12513-1, were installed on some seals at two heights, 4.2 mm and 20.2 mm (0.16 in. and 0.80 in.), above seal center (Figure 5), at four angular locations: 0, 30, 60, and 90 degrees (Figure 4). Eastman 910 cement was used to attach the gages. Strain data were recorded by an Acurex Autodata 9 Scanner with a digital cassette recorder.

NOTES

1. PURCHASE FROM GRAY TOOL CO. P.O. BOX 2291 HOUSTON, TEXAS, 77001. 29.250 I.D. SEAL RING.
2. PURCHASE FROM DUFF-NORTON CO. P.O. BOX 1719 CHARLOTTE, N.C. 28232 SCREW JACK ACTUATOR MODEL 1845 3:1 RATIO. 48 TURNS FOR 1" RAISE. AND INDIVIDUAL MOTORIZED DRIVE FOR EACH.
3. PURCHASE FROM INTERFACE, INC., 7401 EAST BUTHERUS DRIVE, SCOTTSDALE, ARIZONA. LOAD CELL MODEL 1240 WITH 3" HOLE IN CENTER.

DESIGN AGENCY PART IDENTIFICATION NO.	REVISIONS					
	ISSUE	SHEET NUMBER	DESCRIPTION	PREPARED BY	DATE	CHKD	APPD
S17765-000	A		C.O. SCN 3636/0	BURCH	1-24-64		



12		HEX BOLT 1-14 UNS-3A		11
6		EYEBOLT ⅝-11		10
3		DUFF-NORTON SCREW JACK ACTUATOR NO. 1845	2	9
12	S17792	BUSHING		8
3	S17785	MOUNTING PLATE		7
3	S17771	WASHER		6
3	S17770	NUT		5
2	S17766	PRESSURE COVER		4
5		GARLOC SEAL RING 29.250 I.D.	1	3
1	S18201	LOWER HUB		2
1	S18200	UPPER HUB		1
NO. REQD	VENDOR AGENCY NUMBER	DESCRIPTION	NOTE	SHEET ITEM

LIST OF MATERIAL

6M		LOCKTITE 504 GASKET ELIMINATOR		21
4		CAP SCREW ½-13 UNC-2A × 2LG		20
3		LOAD CELL, MODEL 1260, INTERFACE, INC	3	19
4B		LOCKWASHER, ⅝ INTERNAL SHAKEPROOF		18
4B	AN10-41A	HEX HD BOLT, ⅝-18 UNF-3A × 4.75 LG		17
4B		LOCKWASHER, ⅜ INTERNAL SHAKEPROOF		16
4B		CAP SCREW ⅜-16 UNF-2A × 2LG		15
12		LOCKWASHER 1"		14
4		FLATWASHER 1"		13
12		HEX NUT 1-14 UNS-3B		12
NO. REQD	VENDOR AGENCY NUMBER	DESCRIPTION	NOTE	SHEET ITEM

AGENCY APPROVALS		
	DATE	APPROVALS
1541		

DWG. NO. S17765

Figure 2. Seal Test Fixture (S17765)

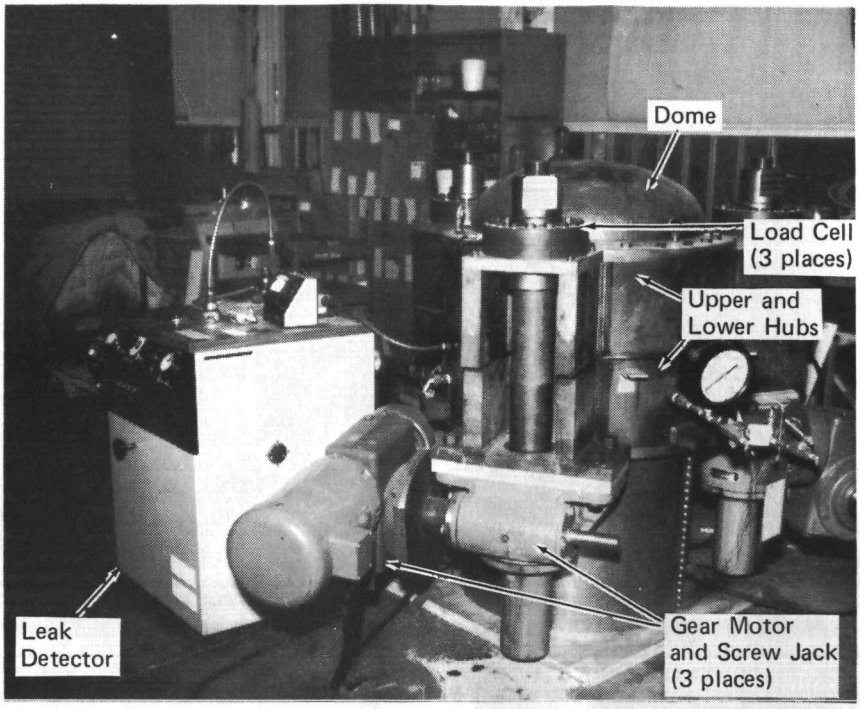


Figure 3. Assembled Test Fixture and Leak Detector (C79-667)

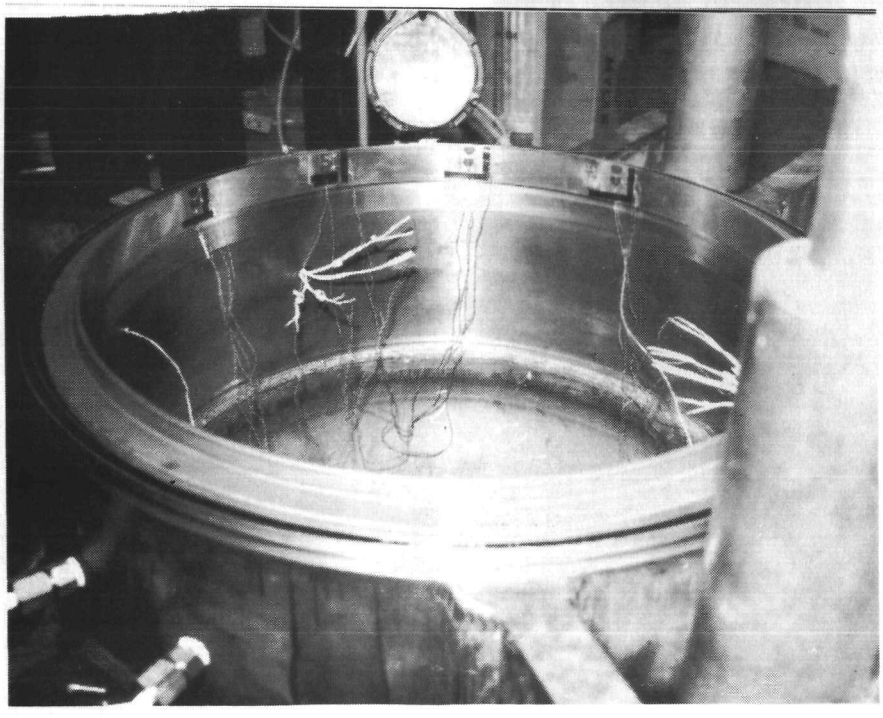


Figure 4. Strain Gaged Ring in Fixture (C79-668)

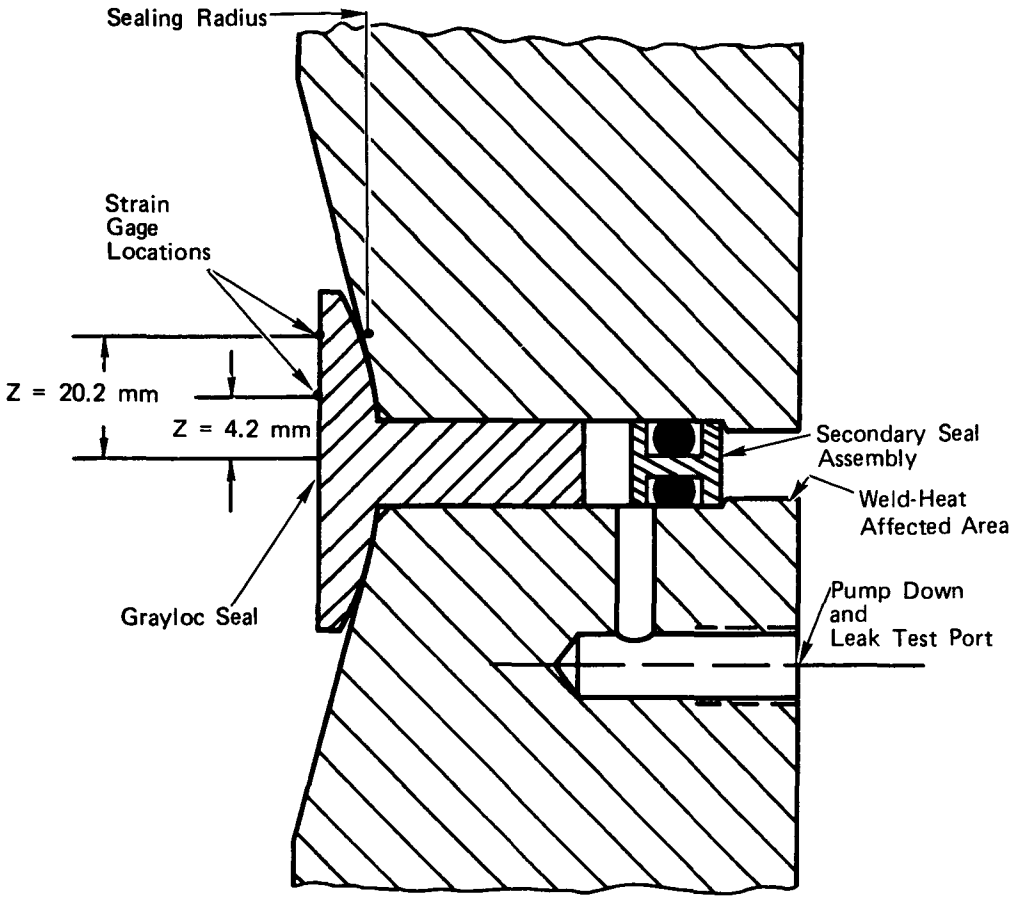


Figure 5. Cross Section Showing Seal, Secondary Seal Assembly, and Strain Gage Locations (no scale)

Temperature

Three Type K thermocouples were attached to the lower hub about 80 mm (3.12 in.) below the seal seat. Temperatures were recorded by the scanner and digital recorder.

Diameters

Inside diameters of the seal rings were measured near each strain gage location with an inside vernier micrometer. Holding fixtures were used to support the micrometer to eliminate temperature differentials that might have occurred if the micrometer had been hand-held. A 5°C (9°F) average differential would result in a 0.04-mm (0.0017-in.) error. Measured diameters were corrected to a standard temperature of 21.5°C (71°F).

Diameters were not measured on all tests since the dome had to be removed to make these measurements.

Axial Motion

Six dial indicators, located at 0, 30, 60, 90, 120, and 240 degrees, were used to determine hub-to-hub axial motion. Since the indicators could not be mounted at the sealing radius, it was necessary to correct the readings for radius. This was done by assuming that the readings made at the screw-jack locations (0, 120, and 240 degrees) were displacements of 3 points symmetrically located on a plane. Correction factors for the 30-, 60-, and 90-degree readings were then based on the slope of the line passing through the center of the plane and the reading point. It was found later that hub deflections made this assumption invalid. However, the errors introduced did not significantly affect the calculated average axial motion.

Axial motions showed a nominal ±0.5-mm (0.02-in.) variation between tests for the same seal. This was because the seal cocked when the upper hub was lowered, causing a variable starting point for the motion.

Force

Interface, Inc. Model 1240 MP strain gage load cells were used to measure the force applied by the three screw jacks. Forces resulting from hub and dome masses, 710 kg (1560 lb) and 110 kg (240 lb) respectively, and leakage chamber evacuation were added to the total force as required. A transducer switching unit and a digital strain gage indicator, Doric Models TSU-5 and DS-300-T2 respectively, were used to display the screw-jack forces.

Leakage

A Veeco model MS 90-AB helium leak detector was used to measure seal leakage when the fixture was pressurized with helium. Because the leaks were larger than usually encountered in vacuum work, it was necessary to electronically desensitize the instrument to work in the range of 1×10^{-4} to 1×10^{-6} atm cc/s. A known helium leak of 1.2×10^{-4} atm cc/s was used to calibrate the detector before each measurement. The largest measureable leak was about 2×10^{-4} atm cc/s (helium).

After the helium leak rate was measured, it was converted to an air equivalent by solving Eq B3 of Reference 4 for an effective diameter by using measured values and mass-weighted properties. Then, based on this diameter, the leak rate was calculated for air at 25°C, 101-kPa (1 atm) upstream pressure, 0 kPa downstream pressure, and a leak path length of 0.2 cm (0.08 in.).

If the measured leakage rate seemed high, the seal and seats were usually inspected for obvious defects and recleaned, and the test was repeated. If the leakage rate was in the same range as for the previous test, the seal was rotated slightly to give different mating surfaces, and the test repeated. Tests were stopped if the helium leakage rate was greater than 1×10^{-4} atm cc/s and cleaning failed to decrease leakage.

The test fixture was located in a typical laboratory/shop environment with power tools such as grinders and saws present and in occasional use. Although the seal and seats were washed at assembly, no effort was made to clean the atmosphere or to provide a "clean room" for the testing. An extra washing was made for tests 504 and 507 because grinding operations had been performed near the fixture while it was open.

Test and Hardware Problems

After initial assembly of the fixture, it was found that the welds attaching the loading arms to the upper and lower hubs were inadequate to carry the expected loads. During rewelding, the seal seats, which are machined into the hubs, were warped and scratched.

A service contract was placed with Grayserv, a division of Gray Tool Company, to remachine the seats to meet factory specifications. After two visits by Grayserv personnel, the rework was considered satisfactory and met factory specifications. One of the Grayserv representatives said that their factory engineers believed the test fixture could not seat the seal properly because the hubs would deflect excessively between the load application points (three points, equally spaced around the hubs).

An analysis of hub deflection was made[5] which showed that the maximum expected per hub was about 0.1 mm (0.004 in.). The simplifying assumptions used in the analysis should indicate more bending than would actually occur.

Table 1 shows axial motion measurements (corrected for hub twist by using equations from Reference 5) compared to calculated deflections. The data, P-M and C, agree reasonably.

The hub deflection causes the leakage measurements for seals 5, 6, and 7, given later, to be somewhat suspect. However, even with the bending and the O-ring problem mentioned next, air equivalent rates were generally less than 2×10^{-5} atm cc/s.

As mentioned previously, a circular ring with an H section and two 7.0-mm (0.275-in.) O-rings was used to form a sealed chamber around the Grayloc seal for leak testing. It was found that the force required to compress the O-rings, however, is approximately 30% of the force required to seat the Grayloc seal. One of the 7.0-mm O-rings was replaced with a 5.3-mm (0.210-in.) O-ring to reduce the force to acceptable levels. Figure 6 shows the comparison of force vs compression distance for the two O-ring configurations. Some of the data recorded when the two larger O-rings were used is included in this report (seal 5 and through Test 608 on seal 6) even though it is probable that the Grayloc seal did not seat completely.

The secondary seal assembly had to be positioned quite carefully to clear the pumpdown port (Figure 5) and did not stay in the correct position on some tests.

Table 1. Comparison of Measured and Calculated Hub Deflections

Test	P,* mm (Calculated)	P-M,* mm (Measured)	C,* mm (Calculated)
501	5.51	-0.07	0.11
502	5.19	0.11	0.12
503	5.78	0.05	0.13
504	5.59	0.07	0.13
505	5.30	0.10	0.13
506	5.82	0.04	0.15
602	6.91	0.07	0.10
604	7.28	0.04	0.18
605	5.63	0.20	0.19
606	6.44	0.05	0.18
607	5.96	0.10	0.16
701	6.19	0.07	0.16
702	5.95	0.09	0.15
703	6.18	0.08	0.14
704	5.67	0.14	0.15
705	5.89	0.11	0.15

*Where: P is motion at 60 deg assuming hub moves as a plane as described in text
M is measured motion corrected for hub twist
C is calculated motion as per Reference 5 for two hubs

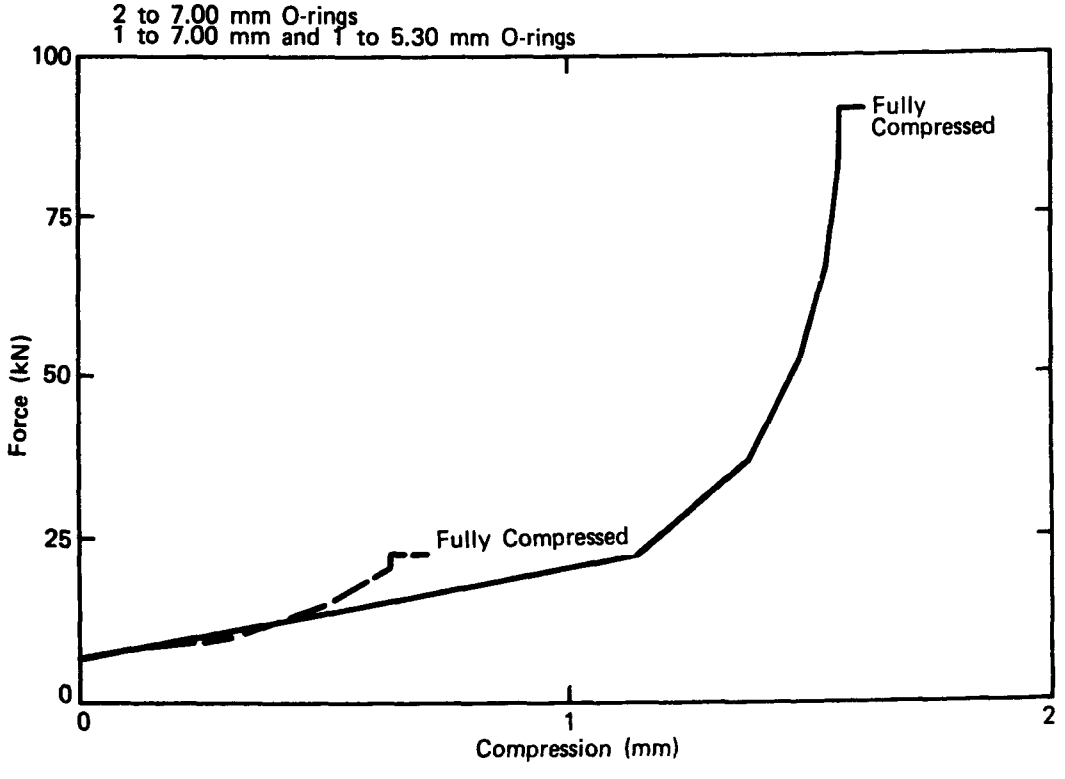


Figure 6. O-Ring Force Comparison to Full Compression

When this occurred, leakage measurements could not be made. The tight tolerance for secondary seal positioning was not intended in the original design but resulted because the light-duty tooling used for remachining could not cut the weld-heat affected area at the outside hub diameters which resulted from rewelding.

Test Procedure

Tests were numbered with a three-digit number: the first digit is the seal number (1 through 7) and the remaining digits are the makeup number (1 through 99). An A or B following the test number indicates a force increase without release of the seal first.

Strain gages were installed on new seals (seals 2 and 7). The seals and seats were washed thoroughly with alcohol and lint-free disposable wipers and allowed to air dry. The seal and seats were usually inspected for obvious visible defects, and the seal was placed on the lower seat. The secondary O-ring seal was placed in position around the Grayloc seal.

The upper hub (and dome, if diameters were not being measured) was lowered until the seal supported the weight. Initial diameters were measured, and dial indicators were zeroed. The force on the seal at this time was recorded as the weight of the hub and dome (if installed) and strain data were scanned. The screw jacks loaded the seal in approximately 9-kN (2000-lb) increments. Tightening order among the three screw jacks was varied for each increment. Measurements were usually taken at each increment. If the test was intended only to measure leakage, no data were recorded until peak force was reached.

A continuous plot of average axial motion vs force was made while the seal was being loaded. (Figure 7 is a typical plot.) An abrupt slope change was taken to mean that the hubs had bottomed on the seal rib so the seal was fully seated. Bottoming could not be observed visually because of the secondary seal assembly.

After peak data were recorded, the dome was installed (if not already on), and the vessel pressurized to 100 to 200 kPa (15 to 30 psig) with helium. The leak detector, calibrated against a standard leak, was valved to the pumpdown port and allowed to pump until leakage and vacuum readings stabilized. The differential pressure across the seal was then 85 kPa (12.1 psi)* higher than the vessel pressure. The leakage rate was recorded, the pumpdown port valved off and vented, and the vessel bled to atmospheric pressure. Force was reduced in approximately 9- to 18-kN (2000- to 4000-lb) increments, usually recording data at each increment. The final point was taken when the upper hub was clear of the seal.

*Nominal barometric pressure at Albuquerque, NM

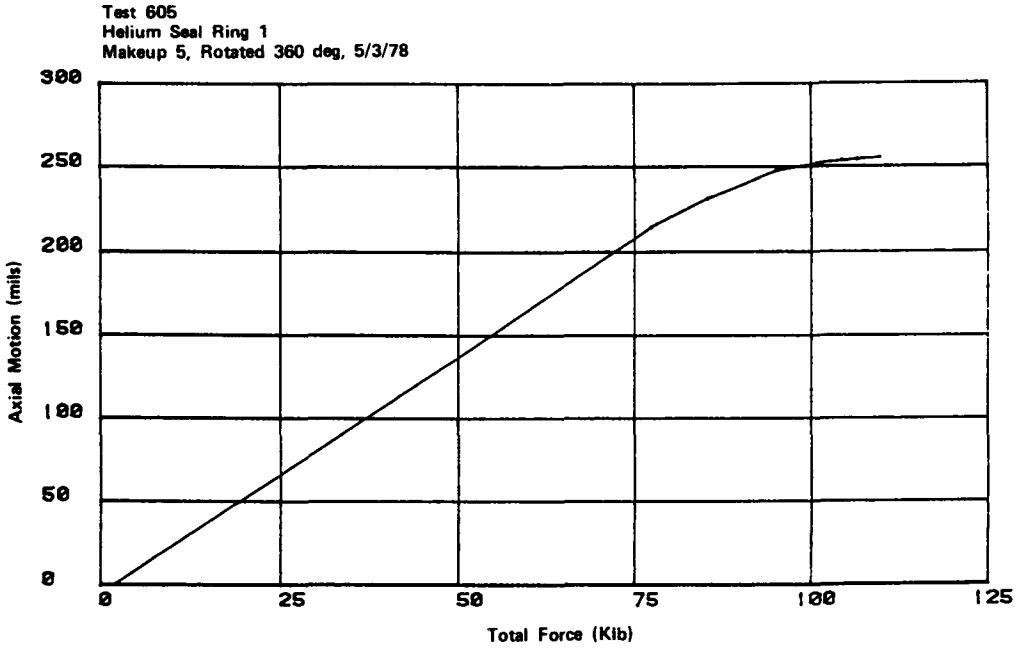


Figure 7. Typical Force-Distance Plot During Makeup

Test Data

Tables and plots of recorded and reduced data from seals 2 and 7 including force, axial motion, strain, measured diameter, and diametrical reduction are in Appendices A and B. As mentioned previously, not all of the data were taken for each seal. Appendix C contains measured leak rate data.

A summary of measured data is given in Table 2.

Results and Discussion

Experimental

Table 2 shows two modes of loss of sealing capacity: abrupt, as with seal 6, and gradual, as with seal 7. Seal 5 did not exhibit a permanent loss. Table 2 should also reflect the residual strain indicated by the strain gages (Appendices A and B) by smaller axial motion and total force values for subsequent make-ups. However, the effect is not apparent and is probably masked by the previously mentioned uncertainties in both axial motion and force.

It is felt that the data obtained is useful to assist others in selecting a seal but that insufficient data were obtained to perform meaningful statistical analyses.

Comparison With Analysis

Test number 701 was selected to compare the test results with the pretest calculations. The average of the data from the four Z = 4.2 mm locations around the ring was used for the comparisons. The reduction in the diameter as a function of load was calculated from the measured diameters, recorded circumferential strain, and by the PLAST model with a coefficient of friction of 0 or 0.1. Figure 8 shows a plot of the resulting four curves. The pretest model unloading curves were not calculated since, at that time, the actual peak force to be applied to the seal was not known. The measured curve does not show the complete cycle because the dome was installed when peak force was reached. The fourth curve, based on measured strain, shows the complete cycle. The test results and the calculations agree very well until just before the fixture closes. A very small amount of plasticity has occurred in the ring as evidenced by the analysis, the linear character of the experimental loading curve, and the residual strain measurements upon unloading. The analysis does not predict significant yielding until a load of 410 kN is reached. Point contact is essentially predicted between the seal and the hub until substantial yielding occurs. It is expected that better sealing properties and more contact surface would be realized if higher loads could be applied to the ring. The drop in the load before movement during unloading occurs is caused by the presence of friction. Based on the loading calculation, a coefficient of friction between 0 and 0.1 appears to be a reasonable assumption.

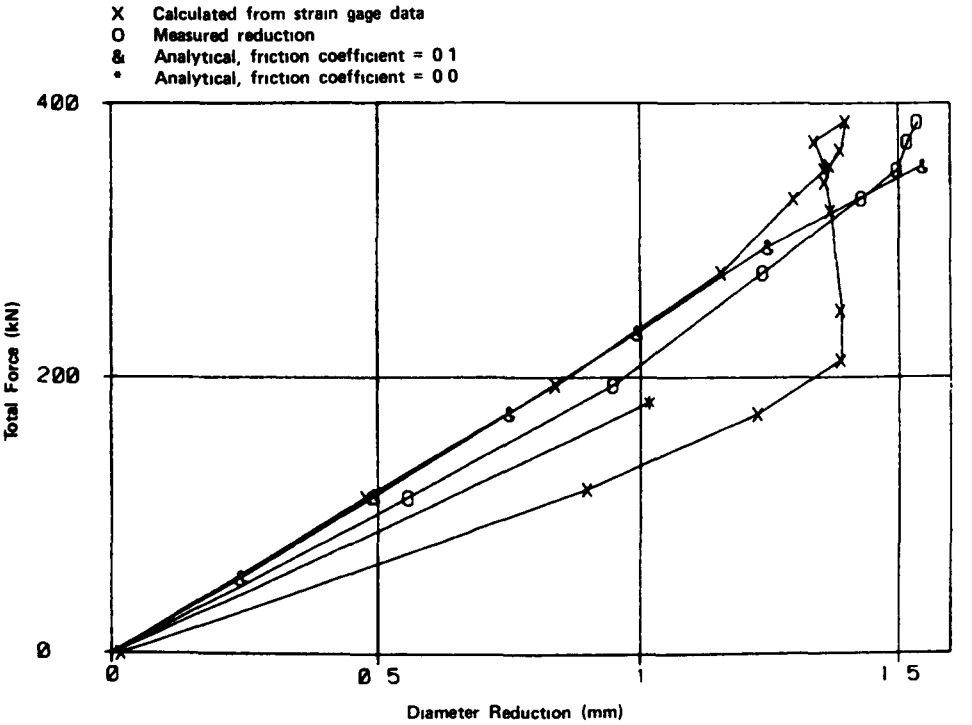


Figure 8. Comparison of Measured and Analytical Results

Table 2. Summary of Data From Seven Grayloc Seal Rings

	Test	Axial Motion (mm)	Total Force (kN)	Leak Rate* (10^{-6} atm cc/s)	Comments
Seal 1	Used for checkouts, no data				
Seal 2	Standard seal, no leak rate measurements, no secondary seal strain gaged (data in Appendix A)				
	201	4.98	276	-	Not fully seated
	202	6.39	381	-	
	203	-	-	-	Data lost
	204	5.88	354	-	
	Seats remachined by Grayserv after this series.				
Seal 3	Seated once with excessive leakage. Seats repolished. Seated again with high leakage. Believed to be scratched.				
Seal 4	Standard seal, not used				
Seal 5	Modified standard seal				
	501	5.01	289	-	O-ring leak
	502	5.28	334	6.4	
	503	5.66	358	5.2	
	504	5.66	355	4.0	Seal and seats washed
	505	5.54	359	4.2	
	506	5.85	390	8.1	
	507		360	8.1	Seal and seats washed
	508		359	13	
	509		354	4.2	
	510		363	-	O-ring leak
	511	No axial	344	-	O-ring leak
	512	measurements	345	16	
	513		382	18	
	514		333	-	O-ring leak
	515		347	-	O-ring leak
	516		343	-	O-ring leak
	517		344	2.4	
	518		343	-	O-ring leak
	519A		333	3.7	
	519B		385	3.4	Force increased without unseating
	520A		341	5.2	
	520B		396	5.2	Force increased without unseating

*Leak rates shown are air equivalents (actual helium leak rate data are in Appendix C).

Table 2. (Cont'd)

	Test	Axial Motion (mm)	Total Force (kN)	Leak Rate* (10^{-6} atm cc/s)	Comments
Seal 6	Helium seal 1				
	601	6.43	439	59	Seal not fully seated
	602	6.76	467	20	
	603	6.88	489	2.9	
	604	6.25	494	2.0	
	605	6.48	488	11	
	606	6.37	433	-	Secondary seal not installed
	607	6.40	435	-	Secondary seal not installed
	608**	6.73	487	0.9	
	609	6.27	454	0.9	
	610	6.27	454	0.9	
	611A	6.28	441	1.4	Leak detector fluctuating
	611B	6.30	478	1.4	Leak detector fluctuating Force increase without unseating
	612	7.11	462	1.3	Leak detector repaired & returned
	613	6.61	459	1.5	
	614	6.59	440	1.3	
	615A	6.57	432	1.1	
	615B	6.59	483	1.1	Force increase without unseating
	616	6.55	433	2.1	
	617A	6.36	433	> range	
	617B	6.43	508	> range	Force increase without unseating
	618	6.37	436	> range	Seal and seats washed
Seal 7	Helium seal 2, strain gaged (data in Appendix B)				
	701	6.15	386	< .3	
	702	6.08	389	15	
	703	6.09	387	34	
	704	6.32	390	-	Leak detector inoperative
	705	6.26	396	48	Seal and seats washed
	706	7.17	411	> range	

*Leak rates shown are air equivalents (actual helium leak rate data are in Appendix C).
**This and subsequent tests were conducted with one 7.0- and one 5.3-mm O-ring in the secondary seal.

Conclusions

The following conclusions, based on the limited number of samples and tests, may be drawn:

- The PLAST model describes seal loading quite well when a coefficient of friction of 0.1 is used.
- Given acceptable seat dimensions and finishes, air leakage rates for the helium service seals may be expected to be in the low 10^{-6} atm cc/s to the mid 10^{-5} atm cc/s range.
- The seals are reusable provided that neither they nor the seats are damaged by handling and that both are free from foreign material.
- If leak rates are critical, a seal installation should include provisions for measuring leakage after assembly.

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[1]O. L. Burchett and J. H. Biffle, *A Program for Static Testing Cask Seals,* SAND76-0287 (Albuquerque, NM: Sandia National Laboratories, June 1976).

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[3]H. J. Rack, *Physical and Mechanical Properties of Cast l7-4 pH Stainless Steel,* SAND80-2302 (Albuquerque, NM: Sandia National Laboratories, February 1981).

[4]*American National Standard for Leakage Tests on Packages for Shipment of Radioactive Materials,* ANSI 14.5 1977, New York, NY, (1977).

[5]M. J. Sagartz, *Deformation of the Sandia Metallic Ring Seal Test Fixture,* SAND78-2191 (Albuquerque, NM: Sandia National Laboratories, January 1979).

APPENDIX A

Measured Data From Seal 2

TABLE , DATA FROM TEST 201 SCAN 1, PRESSURE 0.0 KPA
AVERAGE TEMPERATURE 295.3 K. TIME 16/ 4/ 0

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		0.				0.	0.	0.
DIAMETER MM	U	743.44	743.33	743.41	743.47			743.41
	L	743.65	743.54	743.57	743.60			743.59
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		0.00		0.00		0.00	0.00	0.00
STRAIN UM/M								
AXIAL	U	0.	0.	0.	0.			0.
HOOP	U	0.	0.	0.	0.			0.
COMBINED	U	0.	0.	0.	0.			0.
AXIAL	L	0.	0.	0.	0.			0.
HOOP	L	0.	0.	0.	0.			0.
COMBINED	L	0.	0.	0.	0.			0.

COMMENTS INITIAL READINGS, NO HUB
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 201 SCAN 2, PRESSURE 0.0 KPA
AVERAGE TEMPERATURE 295.6 K. TIME 16/ 5/33

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		2.				2.	2.	2.
DIAMETER MM	U	743.41	743.31	743.36	743.45			743.38
	L	743.63	743.52	743.49	743.57			743.55
DIAMETRIAL CHANGE MM	U	-.03	-.02	-.04	-.02			-.03
	L	-.02	-.02	-.08	-.03			-.04
AXIAL CLOSURE MM		0.00		0.00		0.00	0.00	0.00
STRAIN UM/M								
AXIAL	U	31.	31.	13.	-8.			17.
HOOP	U	-78.	-94.	-50.	7.			-54.
COMBINED	U	84.	99.	52.	11.			62.
AXIAL	L	-19.	15.	-18.	-26.			-12.
HOOP	L	-51.	-53.	-10.	-14.			-32.
COMBINED	L	54.	55.	21.	29.			40.

COMMENTS HUB WEIGHT ONLY
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 201 SCAN 3. PRESSURE 0.0 KPA
AVERAGE TEMPERATURE 296.1 K. TIME 17/44/ 2

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		65.				64.	64.	64.
DIAMETER MM	U	742.59	742.32	742.30	742.43			742.41
	L	742.84	742.68	742.36	742.64			742.63
DIAMETRIAL CHANGE MM	U	-.86	-1.01	-1.10	-1.04			-1.00
	L	-.80	-.86	-1.21	-.96			-.96
AXIAL CLOSURE MM		3.59		3.44		3.64	3.36	3.51
STRAIN UM/M								
AXIAL	U	293.	306.	283.	230.			278.
HOOP	U	-1298.	-1390.	-1369.	-1157.			-1303.
COMBINED	U	1331.	1424.	1398.	1179.			1333.
AXIAL	L	-600.	-564.	-686.	-715.			-641.
HOOP	L	-1125.	-1150.	-1081.	-1064.			-1105.
COMBINED	L	1274.	1281.	1281.	1282.			1279.

COMMENTS 90 DEG U AXIAL STRAIN GAGE BAD
ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 201 SCAN 4, PRESSURE 0.0 KPA
AVERAGE TEMPERATURE 296.7 K. TIME 18/55/53

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		73.				74.	73.	73.
DIAMETER MM	U	742.51	742.24	742.17	742.31			742.31
	L	742.76	742.61	742.60	742.64			742.65
DIAMETRIAL CHANGE MM	U	-.93	-1.09	-1.24	-1.16			-1.10
	L	-.88	-.93	-.98	-.96			-.94
AXIAL CLOSURE MM		3.99		3.80		4.05	3.73	3.89
STRAIN UM/M								
AXIAL	U	342.	336.	320.	290.			322.
HOOP	U	-1443.	-1531.	-1466.	-1346.			-1446.
COMBINED	U	1483.	1567.	1500.	1377.			1482.
AXIAL	L	-662.	-616.	-778.	-793.			-712.
HOOP	L	-1244.	-1262.	-1164.	-1205.			-1219.
COMBINED	L	1409.	1404.	1400.	1442.			1414.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 201 SCAN 5. PRESSURE 0.0 KPA
AVERAGE TEMPERATURE 296.9 K. TIME 19/27/43

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		83.				83.	82.	83.
DIAMETER MM	U	742.39	742.10	741.98	742.05			742.13
	L	742.43	742.46	742.48	742.47			742.46
DIAMETRIAL CHANGE MM	U	-1.06	-1.23	-1.43	-1.42			-1.28
	L	-1.21	-1.09	-1.09	-1.12			-1.13
AXIAL CLOSURE MM		4.44		4.22		4.47	4.20	4.33
STRAIN UM/M								
AXIAL	U	422.	405.	465.	443.			434.
HOOP	U	-1809.	-1724.	-1838.	-1729.			-1775.
COMBINED	U	1857.	1771.	1896.	1785.			1827.
AXIAL	L	-745.	-715.	-894.	-900.			-814.
HOOP	L	-1458.	-1428.	-1388.	-1444.			-1430.
COMBINED	L	1638.	1597.	1652.	1702.			1647.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 201 SCAN 6, PRESSURE 0.0 KPA
AVERAGE TEMPERATURE 297.0 K. TIME 19/47/19

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		92.				94.	91.	92.
DIAMETER MM	U	742.33	742.02	741.93	741.98			742.07
	L	742.17	742.39	742.34	742.41			742.33
DIAMETRIAL CHANGE MM	U	-1.11	-1.31	-1.47	-1.49			-1.34
	L	-1.48	-1.16	-1.23	-1.19			-1.26
AXIAL CLOSURE MM		4.98		4.65		4.87	4.69	4.80
STRAIN UM/M								
AXIAL	U	457.	450.	513.	140.			390.
HOOP	U	-1947.	-1822.	-1973.	-1841.			-1896.
COMBINED	U	2000.	1877.	2039.	1847.			1940.
AXIAL	L	-803.	-759.	-923.	-1046.			-882.
HOOP	L	-1563.	-1515.	-1461.	-1516.			-1514.
COMBINED	L	1757.	1694.	1728.	1842.			1755.

COMMENTS 4-5 MM GAP BETWEEN HUB AND FLANGE
ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 201 SCAN 7. PRESSURE 0.0 KPA
AVERAGE TEMPERATURE 295.8 K. TIME 15/40/ 3

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		78.				78.	79.	78.
DIAMETER MM	U	742.24	742.07	741.97	742.01			742.07
	L	742.59	742.41	742.42	742.45			742.47
DIAMETRIAL CHANGE MM	U	-1.20	-1.26	-1.44	-1.45			-1.34
	L	-1.06	-1.13	-1.15	-1.15			-1.12
AXIAL CLOSURE MM		4.95		4.65		4.84	4.67	4.78
STRAIN UM/M								
AXIAL	U	386.	425.	496.	133.			360.
HOOP	U	-1964.	-1819.	-1944.	-1837.			-1891.
COMBINED	U	2001.	1868.	2006.	1842.			1929.
AXIAL	L	-824.	-827.	-887.	-1016.			-888.
HOOP	L	-1551.	-1510.	-1564.	-1522.			-1537.
COMBINED	L	1756.	1721.	1798.	1830.			1776.

COMMENTS PROCEEDING DOWNWARD
ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 201 SCAN 8. PRESSURE 0.0 KPA
AVERAGE TEMPERATURE 296.1 K. TIME 16/18/25

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		69.				69.	69.	69.
DIAMETER MM	U	742.35	742.06	741.97	742.02			742.10
	L	742.59	742.43	742.41	742.44			742.47
DIAMETRIAL CHANGE MM	U	-1.09	-1.27	-1.44	-1.45			-1.31
	L	-1.06	-1.12	-1.16	-1.16			-1.12
AXIAL CLOSURE MM		4.93		4.65		4.81	4.65	4.76
STRAIN UM/M								
AXIAL	U	389.	416.	486.	127.			355.
HOOP	U	-1953.	-1814.	-1932.	-1830.			-1882.
COMBINED	U	1991.	1861.	1992.	1835.			1920.
AXIAL	L	-827.	-807.	-891.	-1011.			-884.
HOOP	L	-1551.	-1508.	-1525.	-1515.			-1525.
COMBINED	L	1758.	1710.	1766.	1821.			1764.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 201 SCAN 9. PRESSURE 0.0 KPA
AVERAGE TEMPERATURE 296.5 K. TIME 17/30/52

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		60.				60.	61.	60.
DIAMETER MM	U	742.36	742.07	741.97	742.02			742.10
	L	742.57	742.42	742.41	742.43			742.46
DIAMETRIAL CHANGE MM	U	-1.08	-1.26	-1.44	-1.45			-1.31
	L	-1.07	-1.13	-1.16	-1.17			-1.13
AXIAL CLOSURE MM		4.92		4.64		4.80	4.64	4.75
STRAIN UM/M								
AXIAL	U	394.	418.	487.	118.			354.
HOOP	U	-1939.	-1810.	-1922.	-1821.			-1873.
COMBINED	U	1979.	1858.	1983.	1825.			1911.
AXIAL	L	-818.	-792.	-894.	-1014.			-880.
HOOP	L	-1546.	-1504.	-1483.	-1506.			-1510.
COMBINED	L	1749.	1700.	1732.	1815.			1749.

COMMENTS SEAL RING NOT COMING FREE
ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 201 SCAN 10. PRESSURE 0.0 KPA
AVERAGE TEMPERATURE 296.7 K. TIME 18/ 1/48

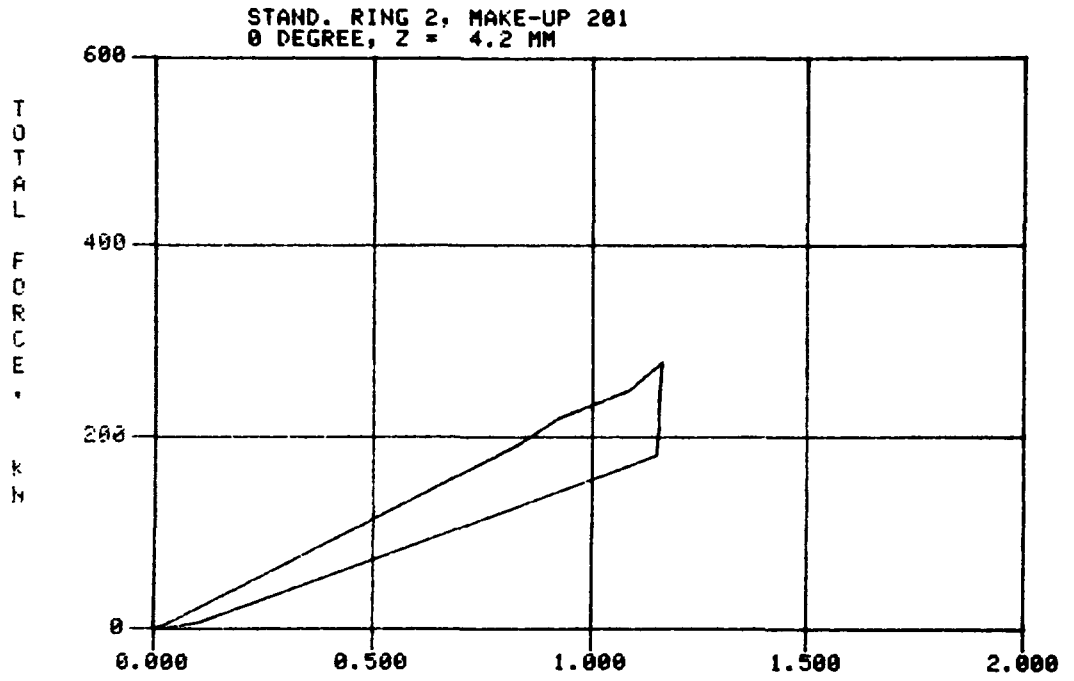
ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		2.				2.	2.	2.
DIAMETER MM	U	743.45	743.29	743.18	743.20			743.28
	L	743.57	743.46	743.44	743.47			743.49
DIAMETRIAL CHANGE MM	U	.01	-.04	-.22	-.27			-.13
	L	-.08	-.09	-.13	-.13			-.11
AXIAL CLOSURE MM		.64		.45		.43	.22	.43
STRAIN UM/M								
AXIAL	U	126.	94.	55.	34.			77.
HOOP	U	-204.	-246.	-208.	-202.			-215.
COMBINED	U	240.	264.	215.	205.			231.
AXIAL	L	-84.	-9.	-112.	-116.			-80.
HOOP	L	-146.	-159.	-75.	-126.			-127.
COMBINED	L	169.	159.	135.	171.			159.

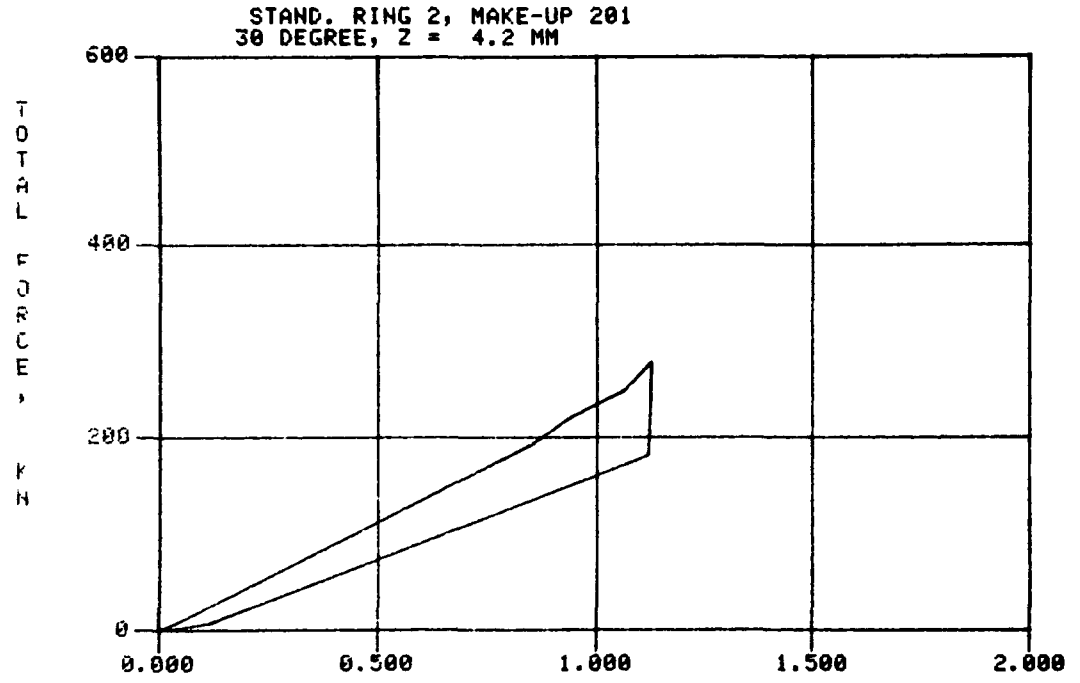
COMMENTS HUB WEIGHT ONLY
ALL DATA CORRECTED TO 294.5 K.

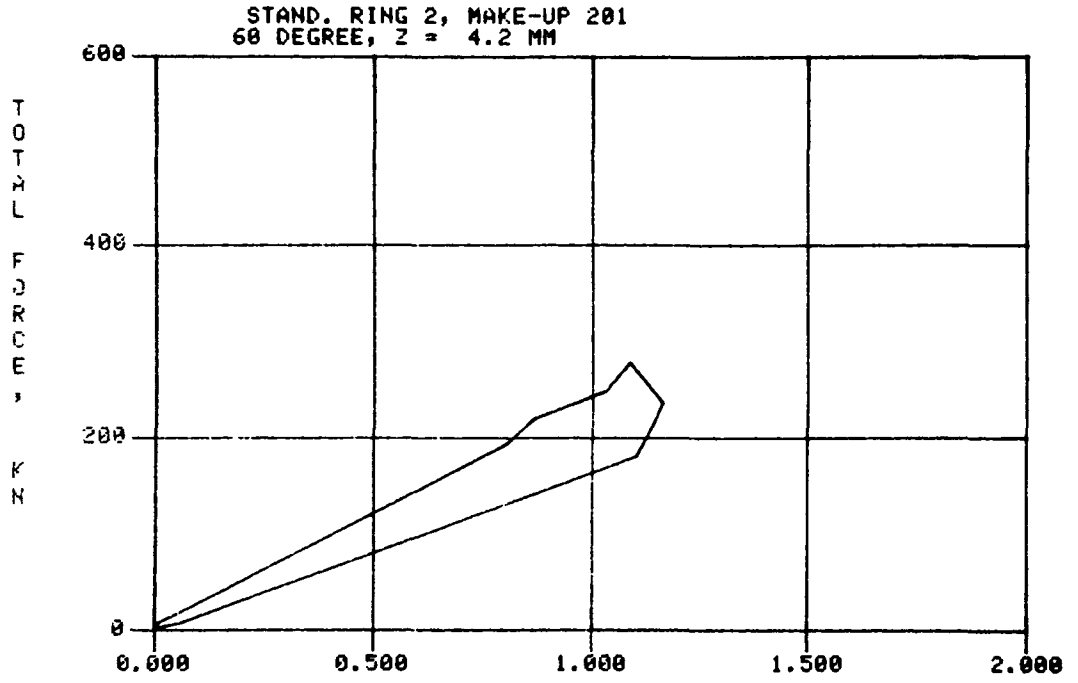
TABLE , DATA FROM TEST 201 SCAN 11. PRESSURE 0.0 KPA
AVERAGE TEMPERATURE 296.9 K. TIME 18/23/38

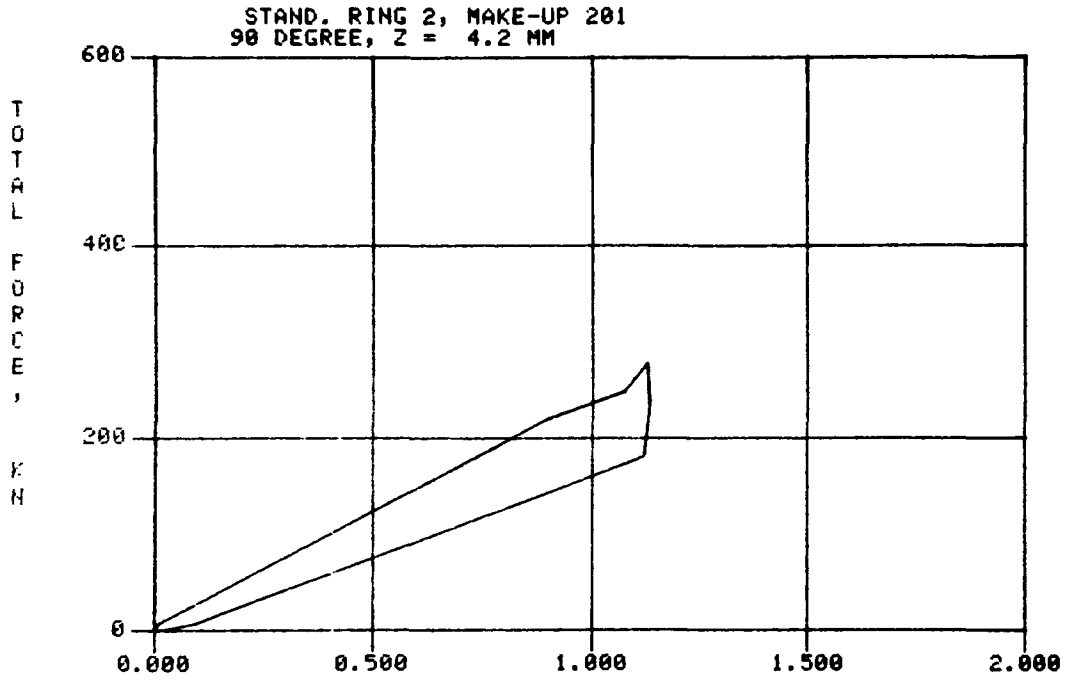
ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		0.				0.	0.	0.
DIAMETER MM	U	743.40	743.30	743.38	743.44			743.38
	L	743.59	743.50	743.55	743.59			743.56
DIAMETRIAL CHANGE MM	U	-.04	-.03	-.03	-.02			-.03
	L	-.06	-.04	-.02	-.01			-.03
AXIAL CLOSURE MM		0.00		0.00		0.00	0.00	0.00
STRAIN UM/M								
AXIAL	U	108.	49.	39.	13.			52.
HOOP	U	-37.	-41.	-65.	-33.			-44.
COMBINED	U	114.	64.	75.	35.			72.
AXIAL	L	-25.	17.	-65.	-50.			-31.
HOOP	L	-30.	-30.	31.	-19.			-12.
COMBINED	L	39.	34.	72.	53.			50.

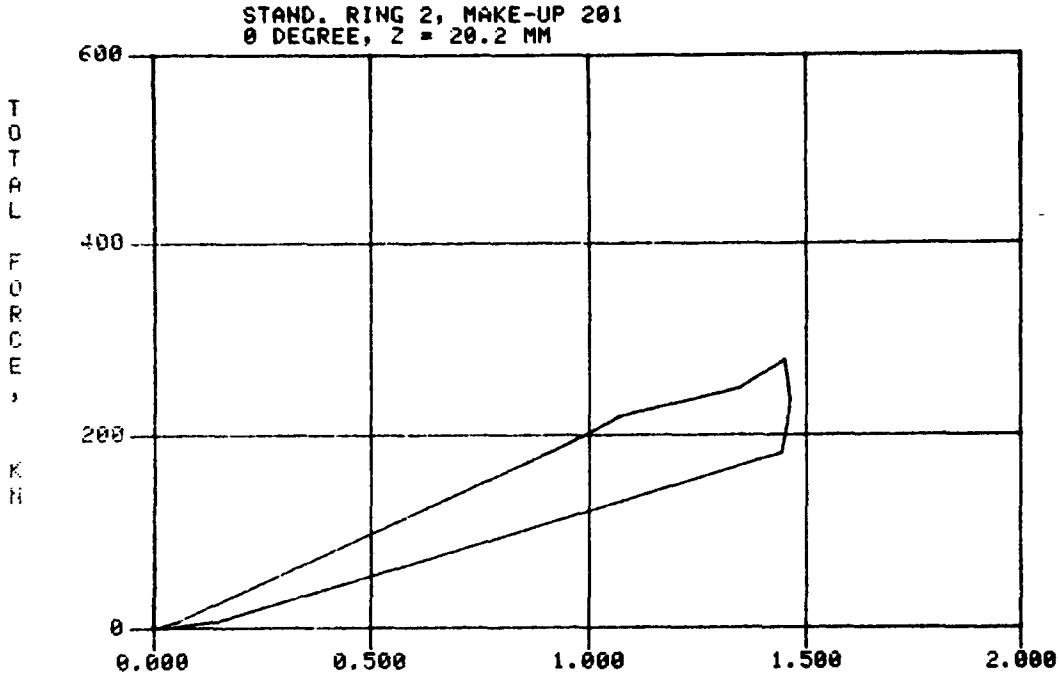
COMMENTS FINAL READINGS, NO HUB
ALL DATA CORRECTED TO 294.5 K.

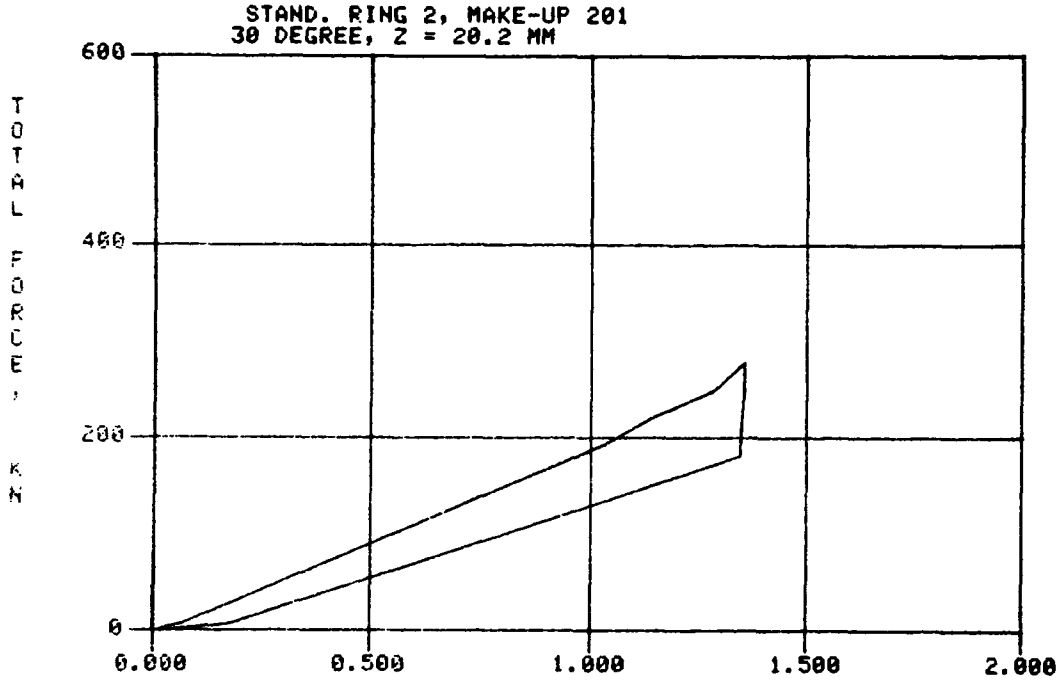

STAND. RING 2, MAKE-UP 201
0 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN

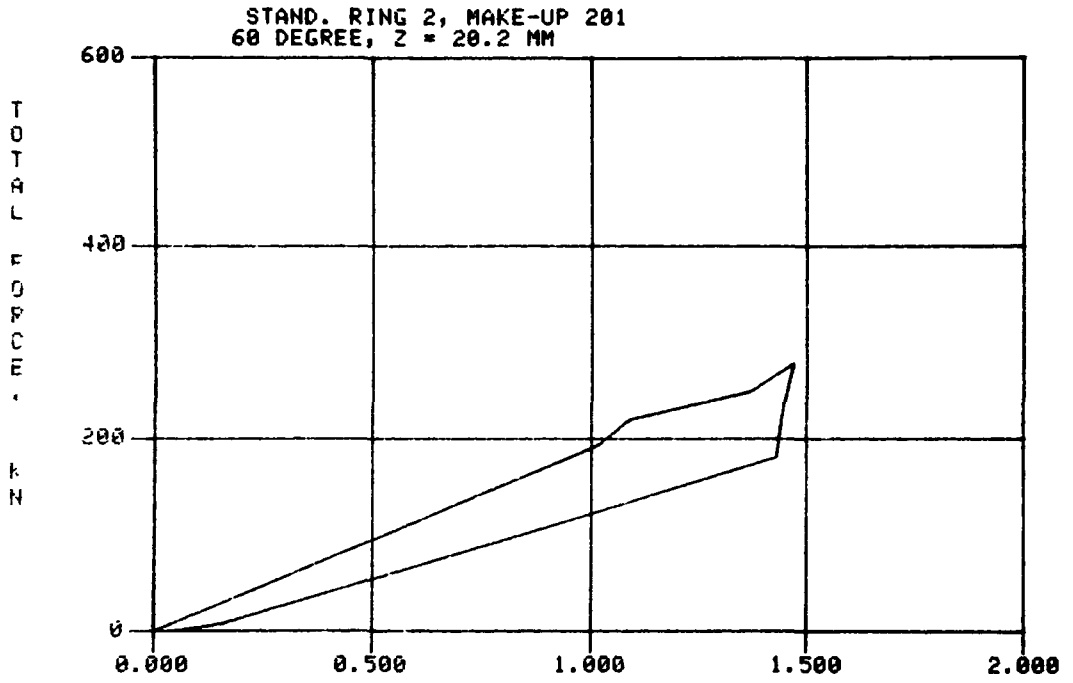

STAND. RING 2, MAKE-UP 201
30 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN

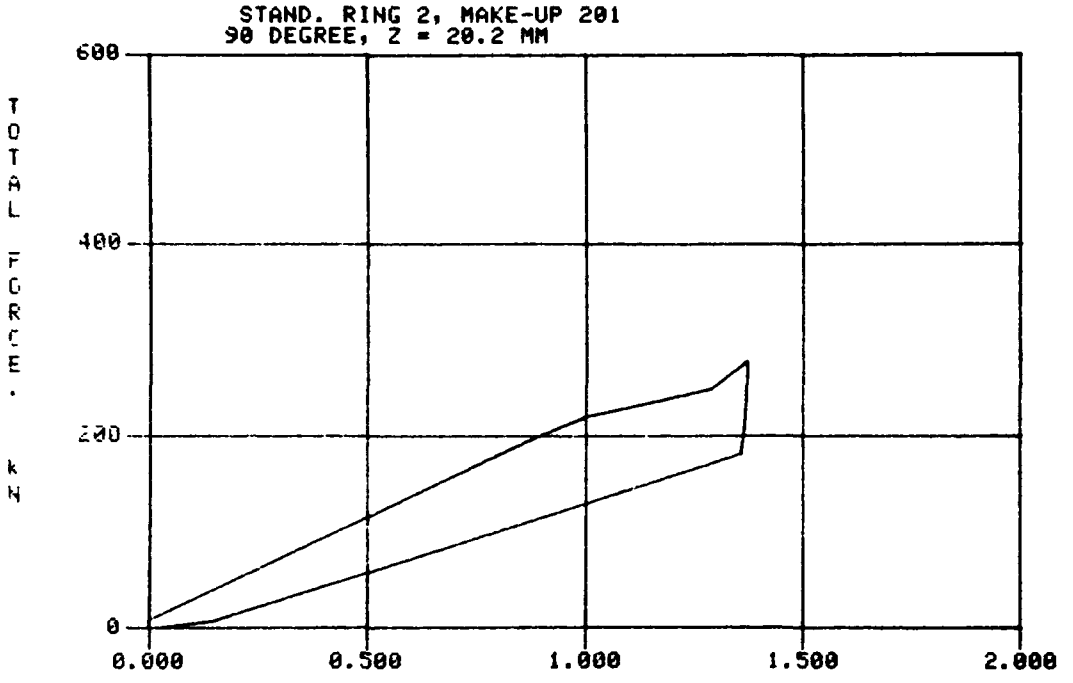

STAND. RING 2, MAKE-UP 201
60 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN

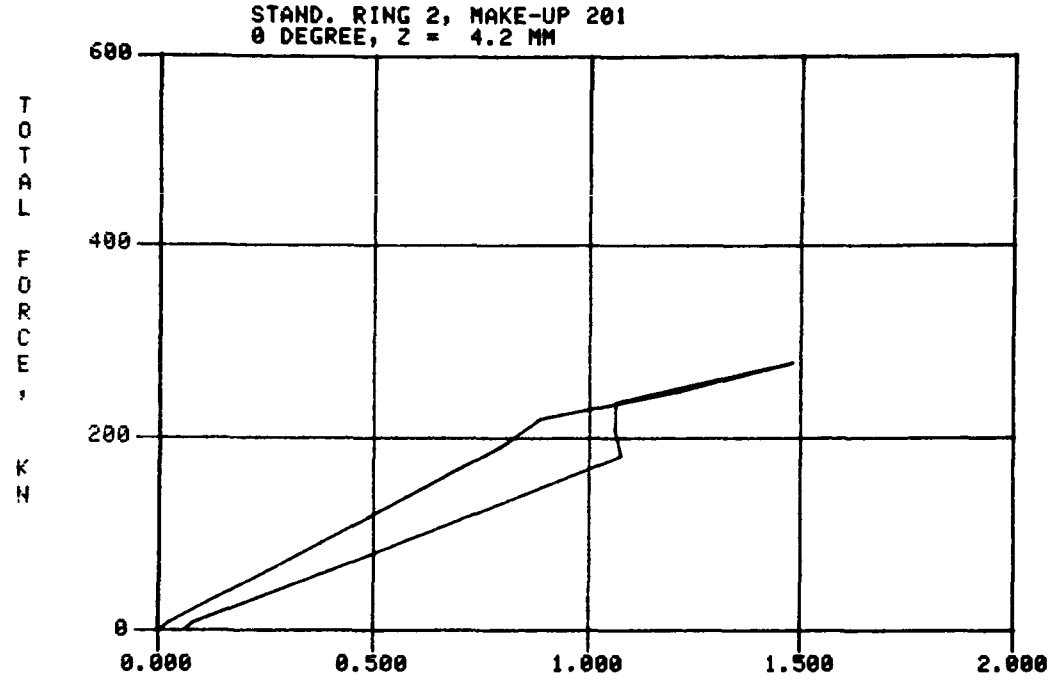

STAND. RING 2, MAKE-UP 201
90 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN

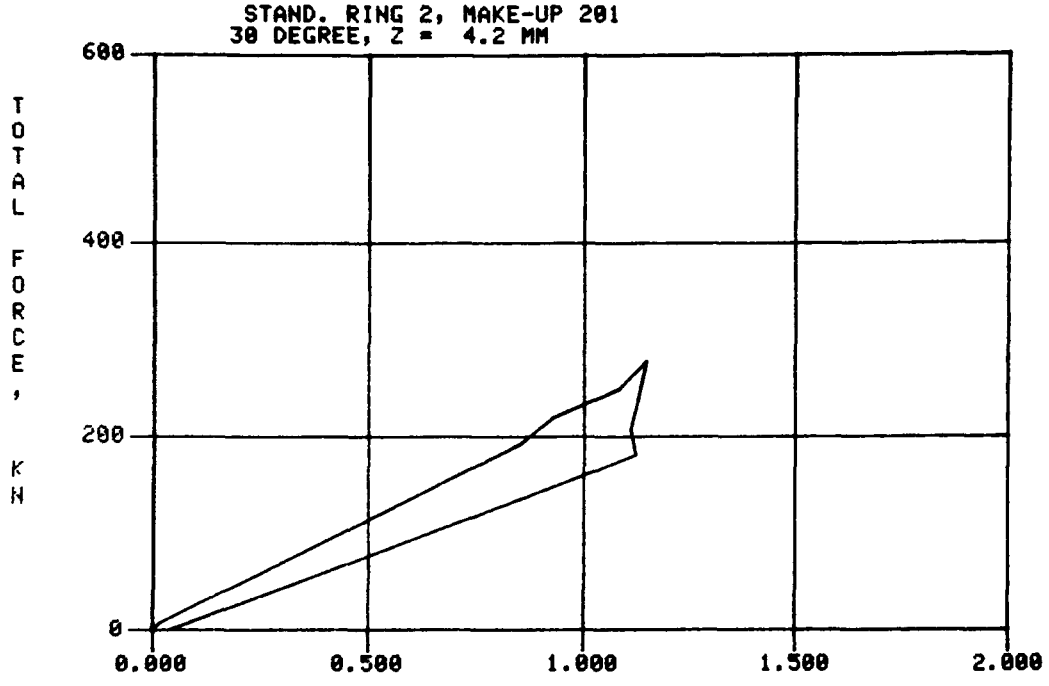

STAND. RING 2, MAKE-UP 201
0 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN

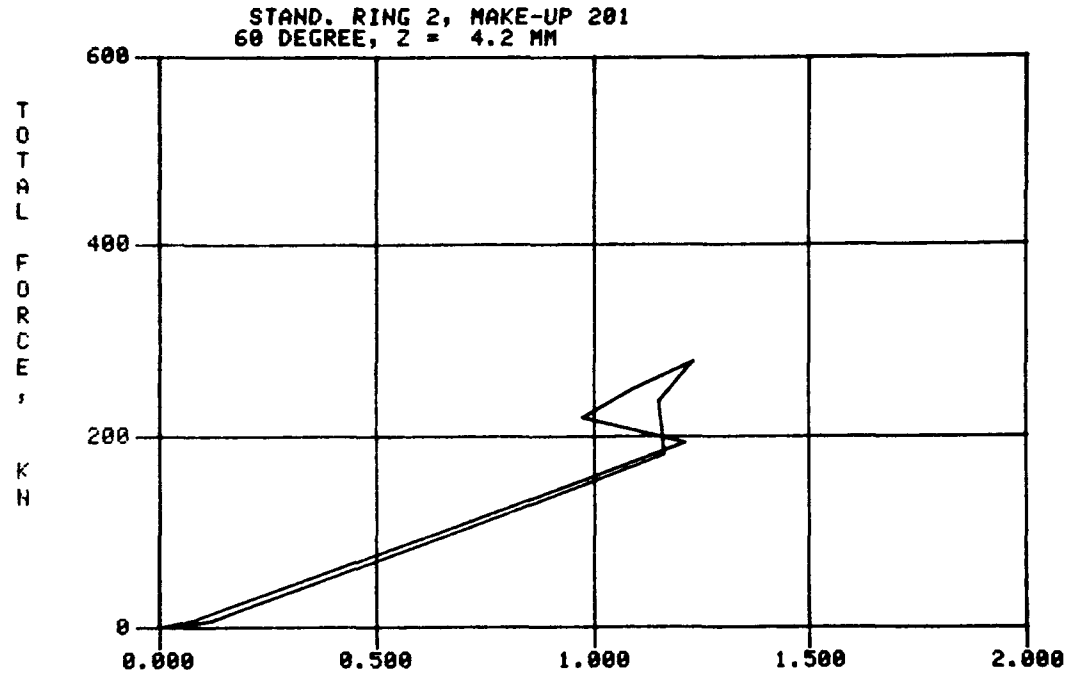

STAND. RING 2, MAKE-UP 201
30 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN

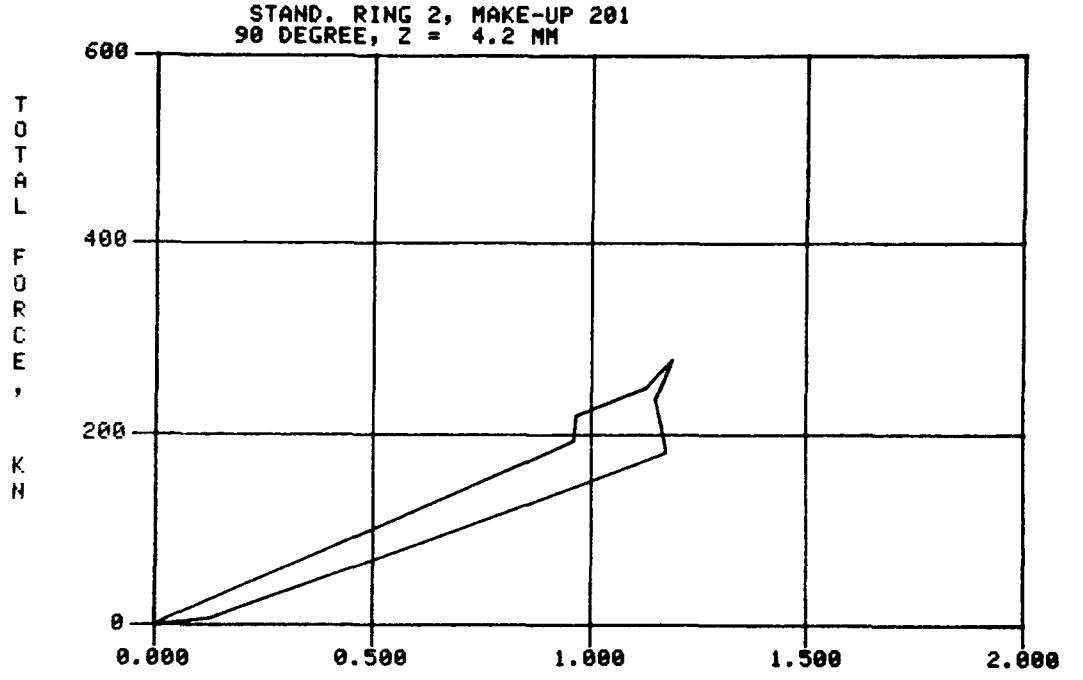

STAND. RING 2, MAKE-UP 201
60 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN

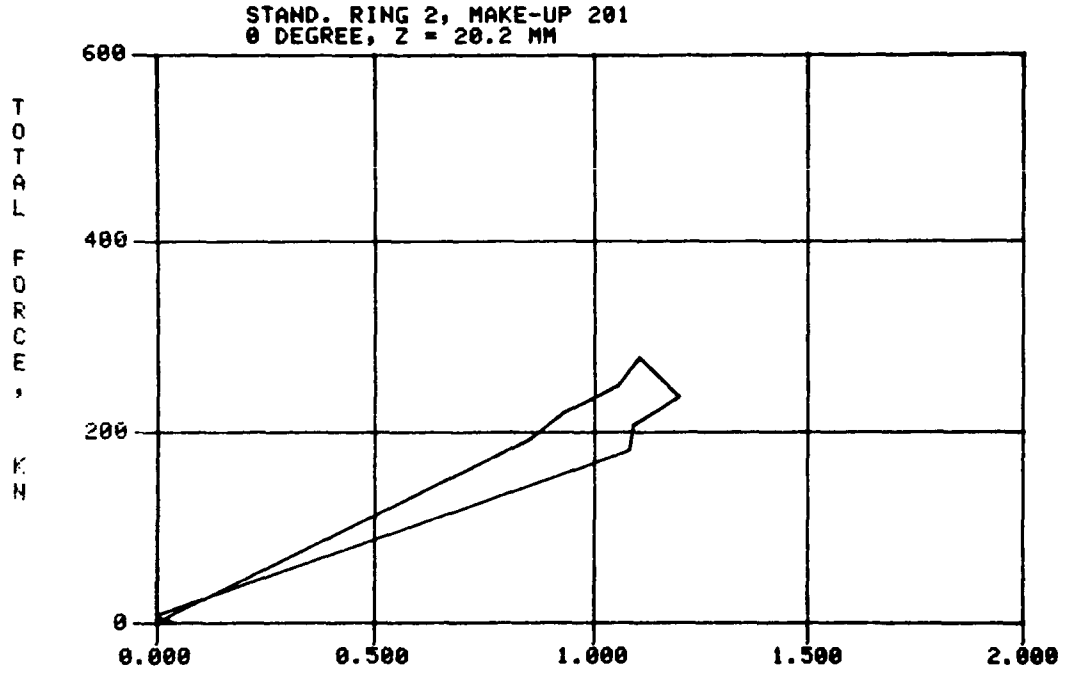

STAND. RING 2, MAKE-UP 201
90 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN

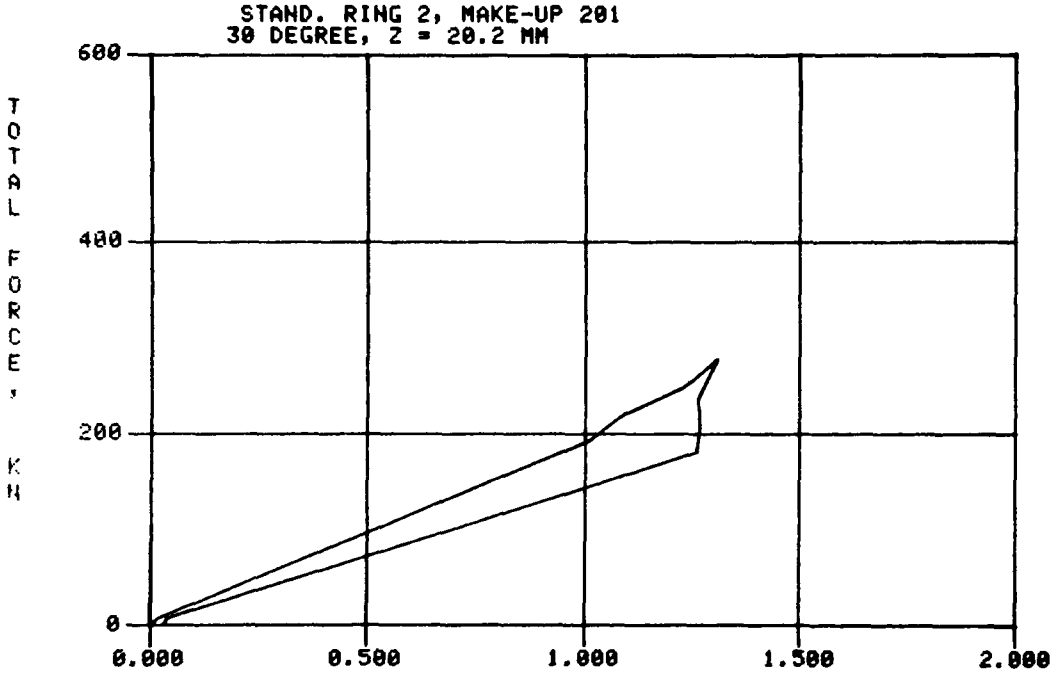

STAND. RING 2, MAKE-UP 201
0 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON MEASURED DIAMETERS

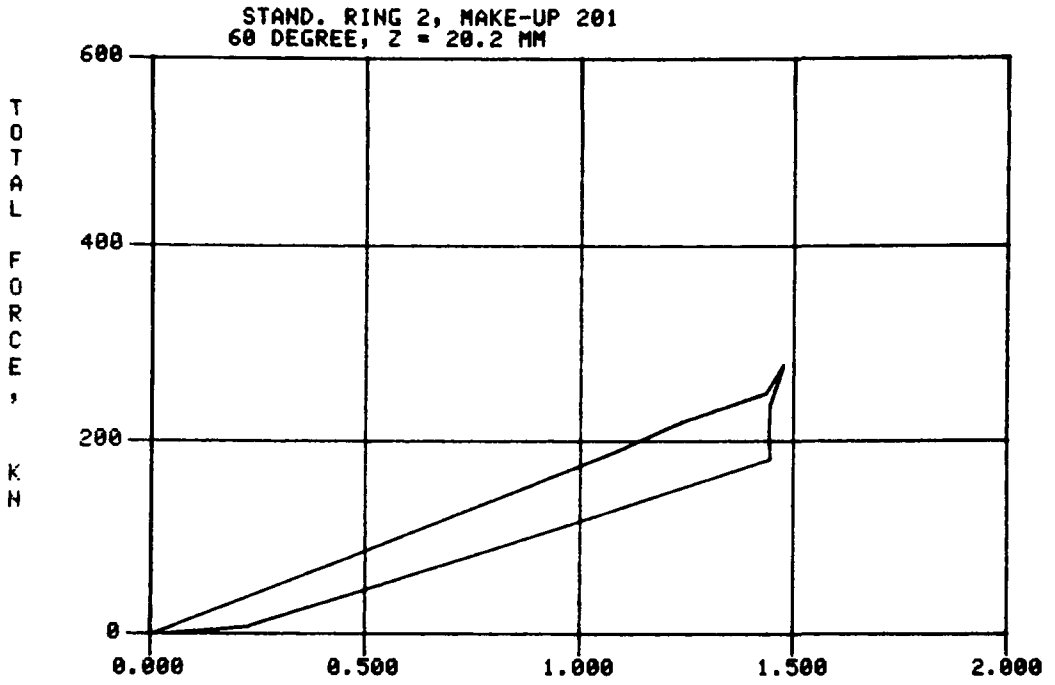

STAND. RING 2, MAKE-UP 201
30 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON MEASURED DIAMETERS


STAND. RING 2, MAKE-UP 201
60 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON MEASURED DIAMETERS


STAND. RING 2, MAKE-UP 201
90 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON MEASURED DIAMETERS


STAND. RING 2, MAKE-UP 201
0 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON MEASURED DIAMETERS


STAND. RING 2, MAKE-UP 201
30 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON MEASURED DIAMETERS


STAND. RING 2, MAKE-UP 201
60 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON MEASURED DIAMETERS

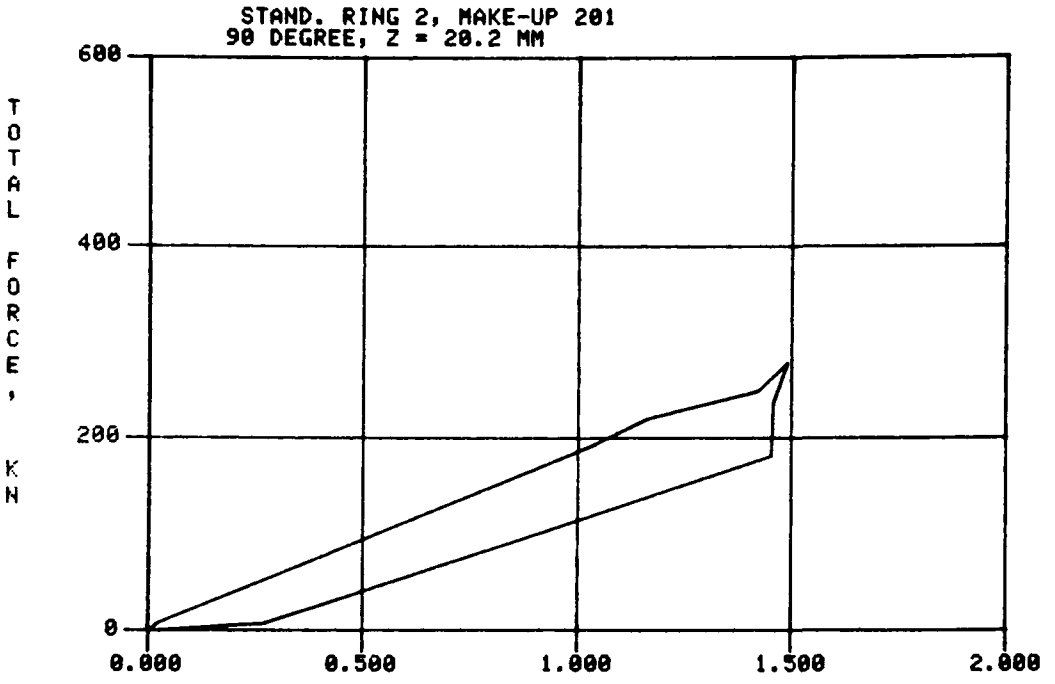

STAND. RING 2, MAKE-UP 201
90 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON MEASURED DIAMETERS

TABLE . DATA FROM TEST 202 SCAN 1, PRESSURE 0.0 KPA
AVERAGE TEMPERATURE 294.6 K. TIME 13/38/39

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		0.				0.	0.	0.
DIAMETER MM	U	743.40	743.30	743.38	743.44			743.38
	L	743.59	743.50	743.55	743.59			743.56
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		0.00		0.00		0.00	0.00	0.00
STRAIN UM/M								
AXIAL	U	108.	49.	39.	13.			52.
HOOP	U	-37.	-41.	-65.	-33.			-44.
COMBINED	U	114.	64.	75.	35.			72.
AXIAL	L	-25.	17.	-65.	-50.			-31.
HOOP	L	-30.	-30.	31.	-19.			-12.
COMBINED	L	39.	34.	72.	53.			50.

COMMENTS INITIAL READINGS. NO HUB. SEAL ROTATED 120 DEG.
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 202 SCAN 2. PRESSURE 0.0 KPA
AVERAGE TEMPERATURE 295.0 K. TIME 13/56/26

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		2.				2.	2.	2.
DIAMETER MM	U	743.38	743.25	743.35	743.39			743.34
	L	743.56	743.47	743.53	743.54			743.52
DIAMETRIAL CHANGE MM	U	-.01	-.05	-.02	-.05			-.04
	L	-.03	-.04	-.02	-.05			-.03
AXIAL CLOSURE MM		0.00		0.00		0.00	0.00	0.00
STRAIN UM/M								
AXIAL	U	161.	66.	36.	-6.			64.
HOOP	U	-166.	-180.	-67.	-2.			-104.
COMBINED	U	231.	192.	76.	6.			126.
AXIAL	L	-3.	-11.	-83.	-95.			-48.
HOOP	L	-106.	-87.	3.	-32.			-56.
COMBINED	L	106.	88.	83.	100.			94.

COMMENTS HUB WEIGHT ONLY
ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 202 SCAN 3. PRESSURE 0.0 KPA
AVERAGE TEMPERATURE 295.7 K. TIME 15/32/32

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		73.				73.	73.	73.
DIAMETER MM	U	742.43	742.25	742.40	742.39			742.37
	L	742.68	742.57	742.65	742.65			742.63
DIAMETRIAL CHANGE MM	U	-.97	-1.05	-.98	-1.05			-1.01
	L	-.91	-.93	-.91	-.94			-.92
AXIAL CLOSURE MM		3.96		3.71		3.77	3.83	3.82
STRAIN UM/M								
AXIAL	U	69.	-71.	-7.	178.			42.
HOOP	U	-1247.	-1093.	-1522.	-1252.			-1279.
COMBINED	U	1249.	1096.	1522.	1264.			1283.
AXIAL	L	-767.	-753.	-843.	-887.			-812.
HOOP	L	-1224.	-1164.	-1174.	-1187.			-1187.
COMBINED	L	1445.	1386.	1445.	1482.			1440.

COMMENTS 90 DEG U AXIAL STRAIN GAGE BAD
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 202 SCAN 4. PRESSURE 0.0 KPA
AVERAGE TEMPERATURE 295.8 K. TIME 15/55/55

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		81.				82.	81.	82.
DIAMETER MM	U	742.34	742.14	742.29	742.28			742.26
	L	742.57	742.46	742.54	742.52			742.52
DIAMETRIAL CHANGE MM	U	-1.05	-1.16	-1.09	-1.16			-1.12
	L	-1.02	-1.05	-1.02	-1.07			-1.04
AXIAL CLOSURE MM		4.41		4.15		4.19	4.23	4.24
STRAIN UM/M								
AXIAL	U	65.	-80.	-24.	197.			39.
HOOP	U	-1363.	-1195.	-1651.	-1410.			-1405.
COMBINED	U	1365.	1198.	1651.	1424.			1409.
AXIAL	L	-854.	-830.	-942.	-977.			-901.
HOOP	L	-1344.	-1285.	-1282.	-1319.			-1308.
COMBINED	L	1593.	1530.	1591.	1642.			1589.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 202 SCAN 5, PRESSURE 0.0 KPA
AVERAGE TEMPERATURE 296.1 K. TIME 17/28/55

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		96.				96.	95.	96.
DIAMETER MM	U	742.17	741.95	742.11	742.13			742.09
	L	742.40	742.29	742.37	742.38			742.36
DIAMETRIAL CHANGE MM	U	-1.23	-1.35	-1.27	-1.31			-1.29
	L	-1.19	-1.21	-1.18	-1.21			-1.20
AXIAL CLOSURE MM		5.14		4.90		4.92	4.91	4.97
STRAIN UM/M								
AXIAL	U	76.	-89.	-63.	14.			-15.
HOOP	U	-1506.	-1350.	-1800.	-1672.			-1582.
COMBINED	U	1508.	1353.	1801.	1672.			1583.
AXIAL	L	-1006.	-937.	-1104.	-1178.			-1056.
HOOP	L	-1527.	-1469.	-1434.	-1528.			-1490.
COMBINED	L	1829.	1743.	1810.	1930.			1828.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 202 SCAN 6. PRESSURE 0.0 KPA
AVERAGE TEMPERATURE 296.2 K. TIME 17/50/ 9

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		105.				105.	105.	105.
DIAMETER MM	U	742.04	741.82	741.98	742.02			741.96
	L	742.29	742.18	742.26	742.26			742.25
DIAMETRIAL CHANGE MM	U	-1.36	-1.48	-1.40	-1.43			-1.42
	L	-1.30	-1.32	-1.29	-1.33			-1.31
AXIAL CLOSURE MM		5.63		5.39		5.39	5.39	5.45
STRAIN UM/M								
AXIAL	U	68.	-99.	-91.	-39.			-40.
HOOP	U	-1599.	-1437.	-1891.	-1781.			-1677.
COMBINED	U	1601.	1441.	1893.	1782.			1679.
AXIAL	L	-1099.	-1014.	-1200.	-1305.			-1155.
HOOP	L	-1653.	-1591.	-1560.	-1652.			-1614.
COMBINED	L	1985.	1886.	1968.	2105.			1986.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 202 SCAN 7, PRESSURE 0.0 KPA
AVERAGE TEMPERATURE 296.4 K. TIME 18/ 9/10

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		113.				114.	112.	113.
DIAMETER MM	U	741.97	741.75	741.90	741.97			741.90
	L	742.21	742.10	742.18	742.19			742.17
DIAMETRIAL CHANGE MM	U	-1.43	-1.55	-1.48	-1.47			-1.48
	L	-1.38	-1.41	-1.37	-1.40			-1.39
AXIAL CLOSURE MM		5.96		5.70		5.76	5.73	5.79
STRAIN UM/M								
AXIAL	U	63.	-102.	-112.	-71.			-56.
HOOP	U	-1675.	-1499.	-1948.	-1820.			-1735.
COMBINED	U	1676.	1502.	1951.	1821.			1738.
AXIAL	L	-1161.	-1066.	-1271.	-1386.			-1221.
HOOP	L	-1743.	-1679.	-1634.	-1729.			-1696.
COMBINED	L	2095.	1989.	2070.	2216.			2093.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 202 SCAN 8, PRESSURE 0.0 KPA
AVERAGE TEMPERATURE 296.7 K. TIME 18/33/44

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		117.				118.	117.	117.
DIAMETER MM	U	741.92	741.70	741.85	741.93			741.85
	L	742.17	742.06	742.14	742.17			742.13
DIAMETRIAL CHANGE MM	U	-1.48	-1.60	-1.52	-1.51			-1.53
	L	-1.42	-1.45	-1.42	-1.42			-1.42
AXIAL CLOSURE MM		6.13		5.77		5.83	5.93	5.91
STRAIN UM/M								
AXIAL	U	65.	-101.	-109.	-81.			-57.
HOOP	U	-1748.	-1549.	-1986.	-1843.			-1782.
COMBINED	U	1749.	1553.	1989.	1845.			1784.
AXIAL	L	-1207.	-1089.	-1302.	-1421.			-1255.
HOOP	L	-1789.	-1717.	-1673.	-1767.			-1736.
COMBINED	L	2158.	2033.	2120.	2267.			2145.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 202 SCAN 9, PRESSURE 0.0 KPA
AVERAGE TEMPERATURE 297.0 K. TIME 19/14/32

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		123.				123.	122.	123.
DIAMETER MM	U	741.89	741.65	741.82	741.92			741.82
	L	742.14	742.02	742.11	742.13			742.10
DIAMETRIAL CHANGE MM	U	-1.51	-1.65	-1.56	-1.53			-1.56
	L	-1.45	-1.49	-1.45	-1.46			-1.46
AXIAL CLOSURE MM		6.28		5.89		5.91	6.14	6.06
STRAIN UM/M								
AXIAL	U	74.	-103.	-105.	-93.			-56.
HOOP	U	-1835.	-1609.	-2031.	-1867.			-1836.
COMBINED	U	1837.	1613.	2034.	1869.			1838.
AXIAL	L	-1225.	-1114.	-1332.	-1447.			-1279.
HOOP	L	-1840.	-1767.	-1692.	-1804.			-1776.
COMBINED	L	2211.	2089.	2154.	2312.			2191.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 202 SCAN 10, PRESSURE 0.0 KPA
AVERAGE TEMPERATURE 297.1 K. TIME 19/38/30

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		127.				128.	127.	127.
DIAMETER MM	U	741.86	741.63	741.80	741.90			741.80
	L	742.12	742.00	742.09	742.13			742.09
DIAMETRIAL CHANGE MM	U	-1.54	-1.67	-1.57	-1.54			-1.58
	L	-1.47	-1.50	-1.46	-1.46			-1.47
AXIAL CLOSURE MM		6.34		5.93		5.97	6.20	6.11
STRAIN UM/M								
AXIAL	U	96.	-102.	-98.	-97.			-50.
HOOP	U	-1908.	-1652.	-2114.	-1877.			-1888.
COMBINED	U	1910.	1655.	2117.	1879.			1890.
AXIAL	L	-1244.	-1133.	-1355.	-1444.			-1294.
HOOP	L	-1878.	-1798.	-1714.	-1817.			-1802.
COMBINED	L	2252.	2125.	2185.	2321.			2221.

COMMENTS INCOMPLETE CONTACT BETWEEN UPPER HUB AND FLANGE
ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 202 SCAN 11, PRESSURE 0.0 KPA
AVERAGE TEMPERATURE 293.9 K. TIME 13/52/48

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		112.				112.	112.	112.
DIAMETER MM	U	741.89	741.67	741.84	741.93			741.83
	L	742.16	742.04	742.12	742.15			742.12
DIAMETRIAL CHANGE MM	U	-1.51	-1.62	-1.54	-1.52			-1.55
	L	-1.43	-1.47	-1.43	-1.44			-1.44
AXIAL CLOSURE MM		6.39		5.98		5.97	6.21	6.14
STRAIN UM/M								
AXIAL	U	-124.	-165.	-103.	-115.			-127.
HOOP	U	-2014.	-1678.	-2119.	-1870.			-1920.
COMBINED	U	2018.	1686.	2121.	1873.			1925.
AXIAL	L	-1310.	-1279.	-1272.	-1391.			-1313.
HOOP	L	-1898.	-1789.	-1949.	-1849.			-1872.
COMBINED	L	2307.	2200.	2328.	2314.			2287.

COMMENTS PROCEEDING DOWNWARD
ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 202 SCAN 12, PRESSURE 0.0 KPA
AVERAGE TEMPERATURE 294.0 K. TIME 14/ 6/ 9

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		91.				92.	91.	92.
DIAMETER MM	U	741.91	741.67	741.83	741.92			741.83
	L	742.17	742.05	742.13	742.15			742.13
DIAMETRIAL CHANGE MM	U	-1.49	-1.63	-1.54	-1.52			-1.55
	L	-1.42	-1.46	-1.42	-1.44			-1.43
AXIAL CLOSURE MM		6.35		5.97		5.91	6.17	6.10
STRAIN UM/M								
AXIAL	U	-96.	-180.	-135.	-135.			-137.
HOOP	U	-2004.	-1685.	-2105.	-1857.			-1913.
COMBINED	U	2006.	1695.	2109.	1862.			1918.
AXIAL	L	-1281.	-1261.	-1279.	-1390.			-1303.
HOOP	L	-1901.	-1801.	-1868.	-1842.			-1853.
COMBINED	L	2292.	2199.	2264.	2308.			2266.

COMMENTS SEAL RING NOT COMING FREE
ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 202 SCAN 13. PRESSURE 0.0 KPA
AVERAGE TEMPERATURE 294.2 K. TIME 14/53/21

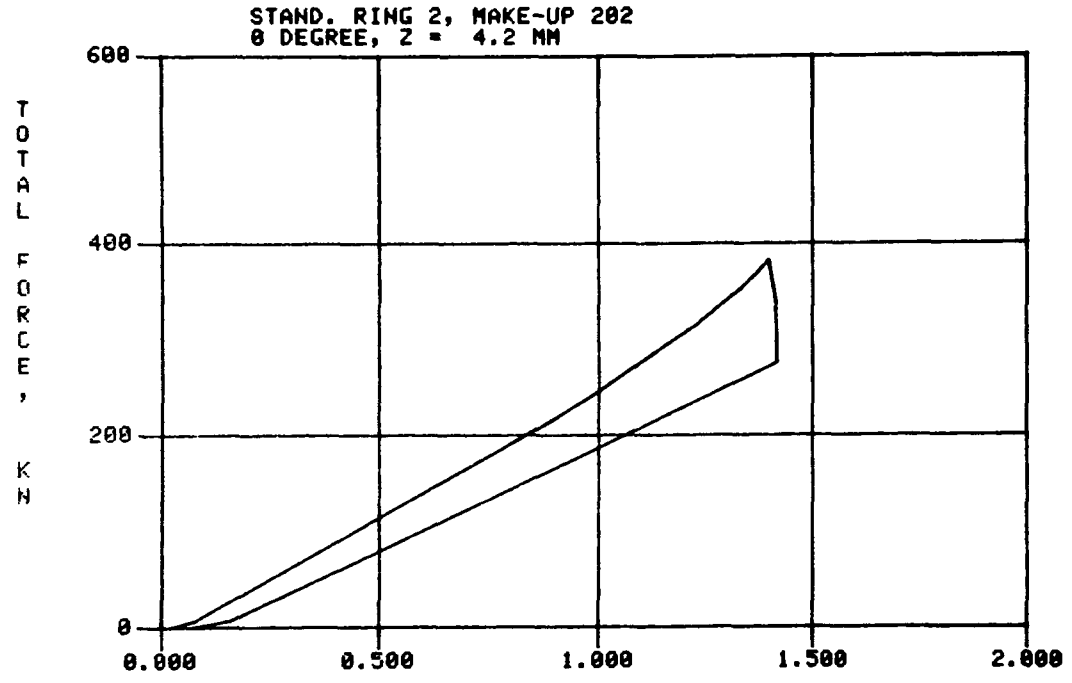
ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		2.				2.	2.	2.
DIAMETER MM	U	743.24	743.39	743.50	743.36			743.37
	L	743.48	743.47	743.52	743.48			743.49
DIAMETRIAL CHANGE MM	U	-.16	.10	.13	-.08			-.01
	L	-.11	-.03	-.03	-.11			-.07
AXIAL CLOSURE MM		-.09		-.05		.37	.80	.26
STRAIN UM/M								
AXIAL	U	195.	56.	22.	-23.			63.
HOOP	U	-249.	-237.	-233.	-204.			-231.
COMBINED	U	316.	244.	234.	205.			250.
AXIAL	L	-118.	-43.	-202.	-207.			-142.
HOOP	L	-216.	-205.	-17.	-147.			-146.
COMBINED	L	246.	209.	203.	254.			228.

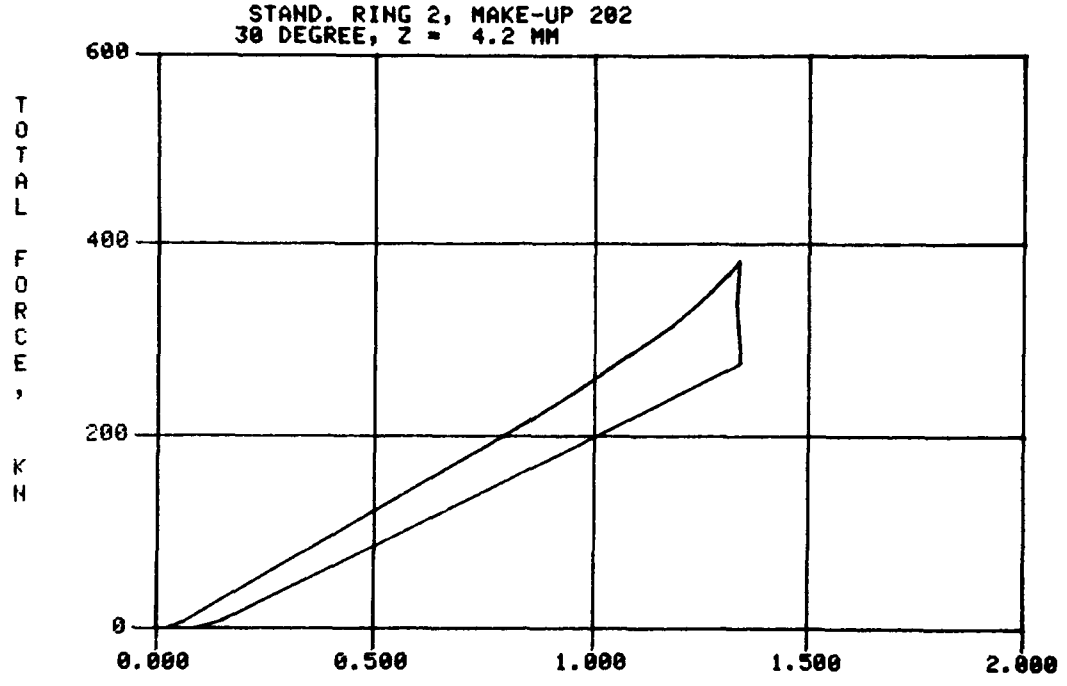
COMMENTS HUB WEIGHT ONLY
ALL DATA CORRECTED TO 294.5 K.

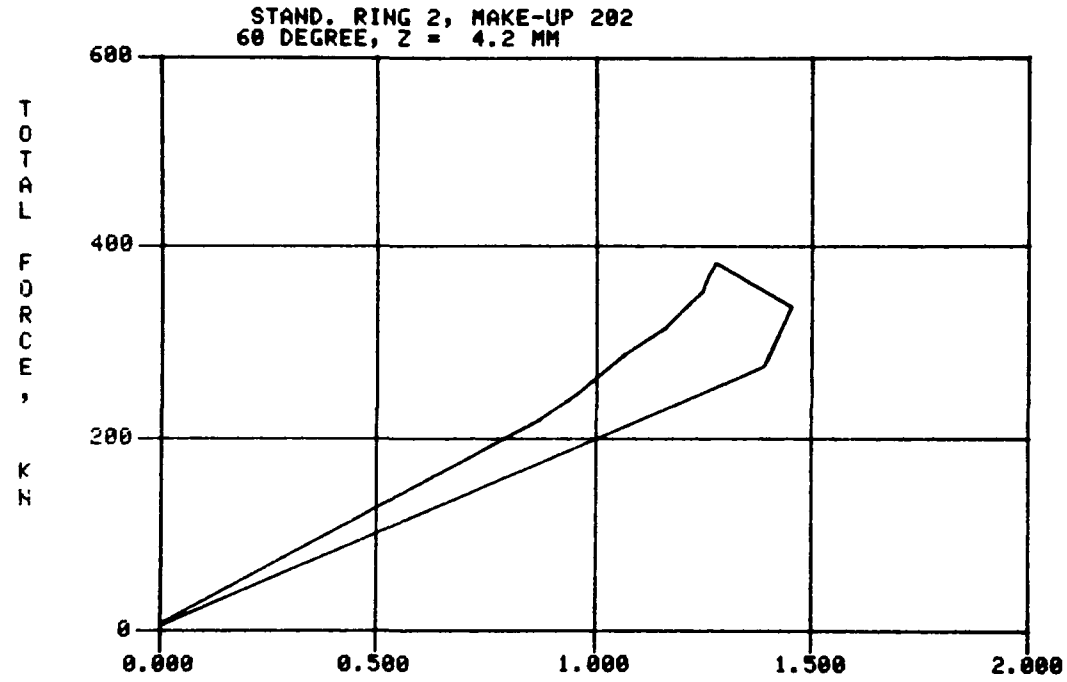
TABLE , DATA FROM TEST 202 SCAN 14, PRESSURE 0.0 KPA
AVERAGE TEMPERATURE 294.6 K. TIME 15/41/11

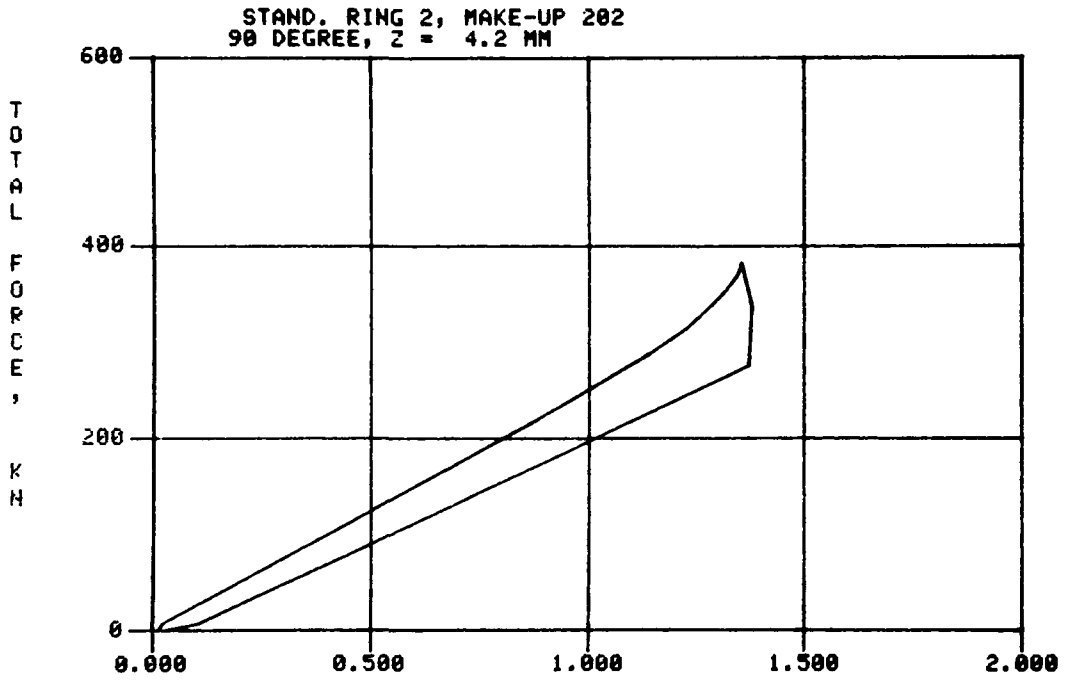
ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		0.				0.	0.	0.
DIAMETER MM	U	743.39	743.29	743.37	743.42			743.37
	L	743.56	743.51	743.54	743.55			743.54
DIAMETRIAL CHANGE MM	U	-.00	-.01	-.01	-.02			-.01
	L	-.03	.00	-.02	-.04			-.02
AXIAL CLOSURE MM		0.00		0.00		0.00	0.00	0.00
STRAIN UM/M								
AXIAL	U	172.	23.	1.	-53.			36.
HOOP	U	-67.	-105.	-132.	-62.			-91.
COMBINED	U	184.	107.	132.	81.			126.
AXIAL	L	-116.	-6.	-198.	-164.			-121.
HOOP	L	-98.	-119.	101.	-43.			-40.
COMBINED	L	152.	119.	223.	169.			166.

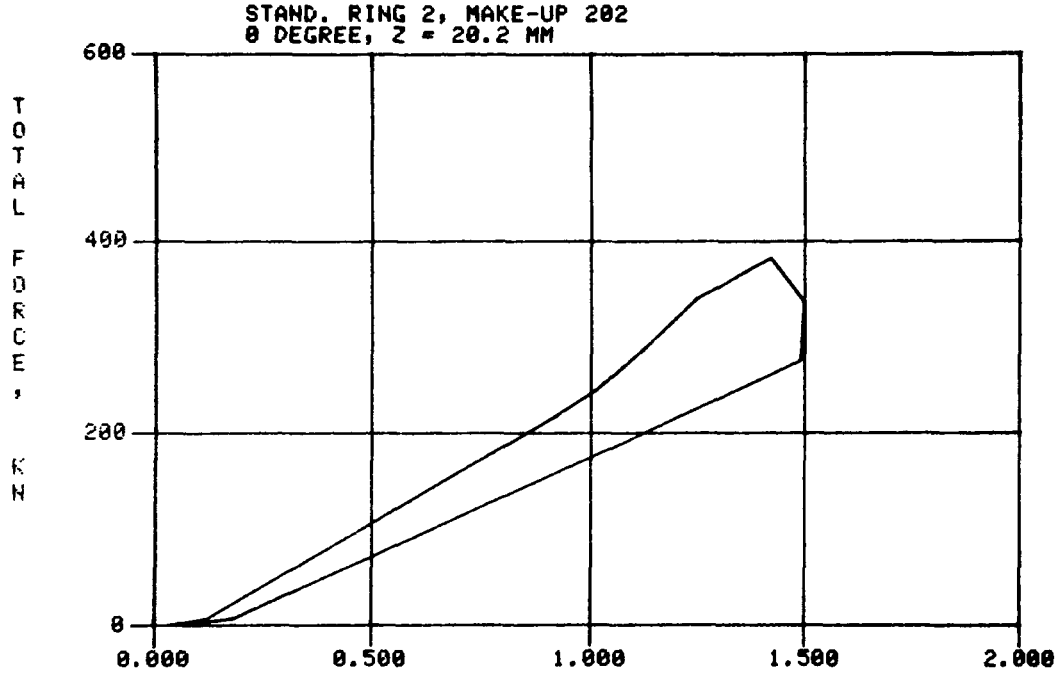
COMMENTS FINAL READINGS, NO WEIGHT
ALL DATA CORRECTED TO 294.5 K.

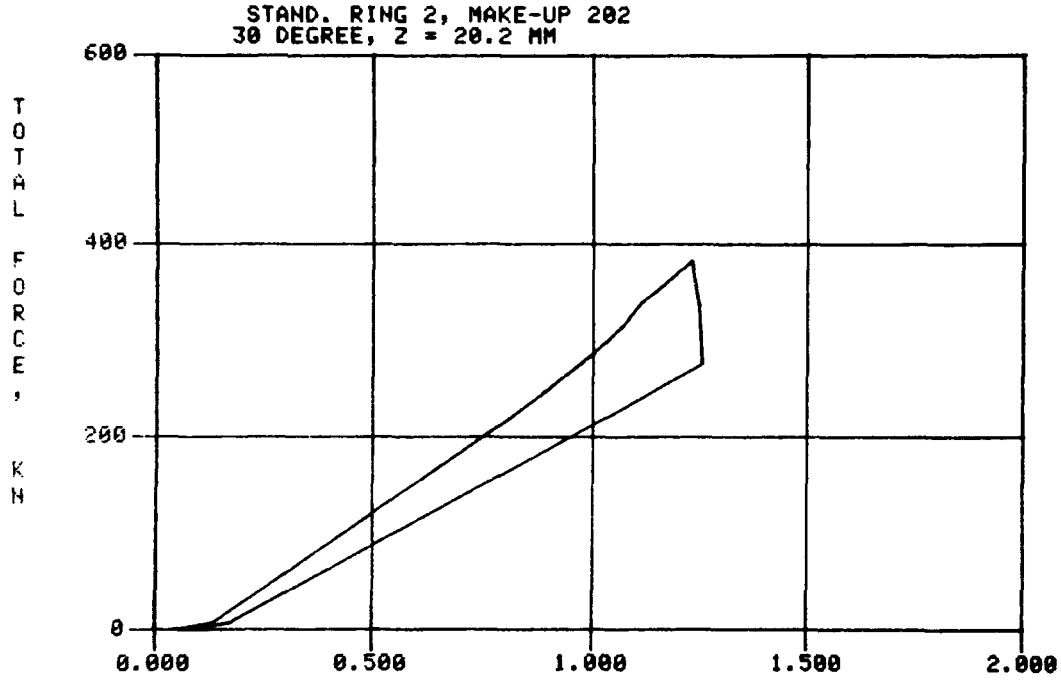

STAND. RING 2, MAKE-UP 202
0 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN

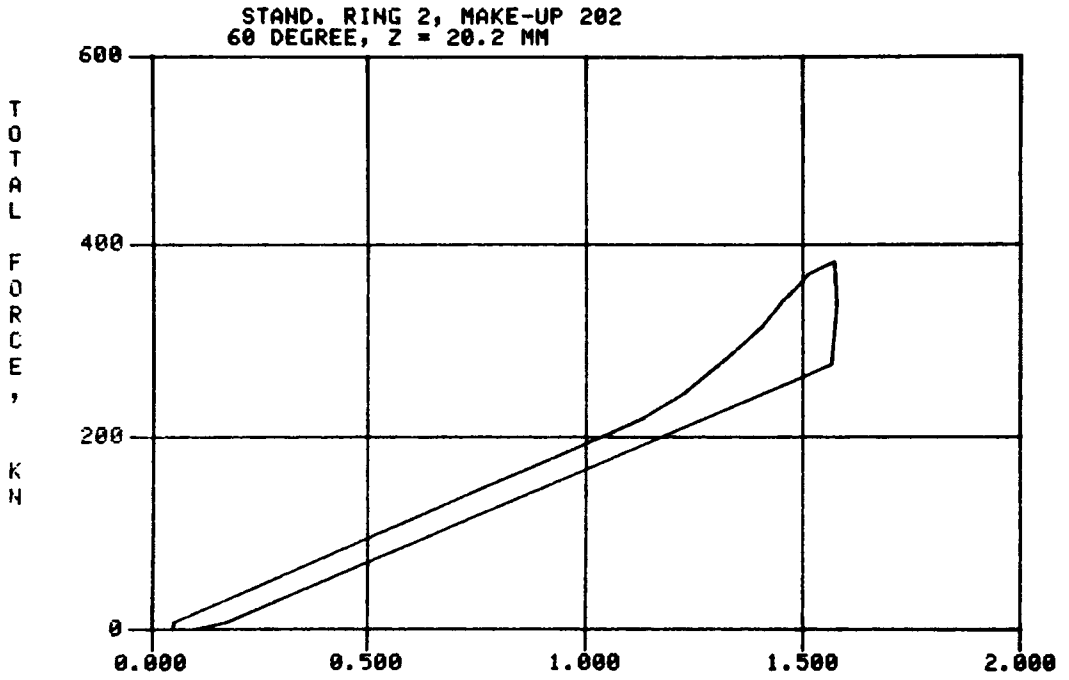

STAND. RING 2, MAKE-UP 202
30 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


STAND. RING 2, MAKE-UP 202
60 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


STAND. RING 2, MAKE-UP 202
90 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


STAND. RING 2, MAKE-UP 202
0 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


STAND. RING 2, MAKE-UP 202
30 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


STAND. RING 2, MAKE-UP 202
60 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN

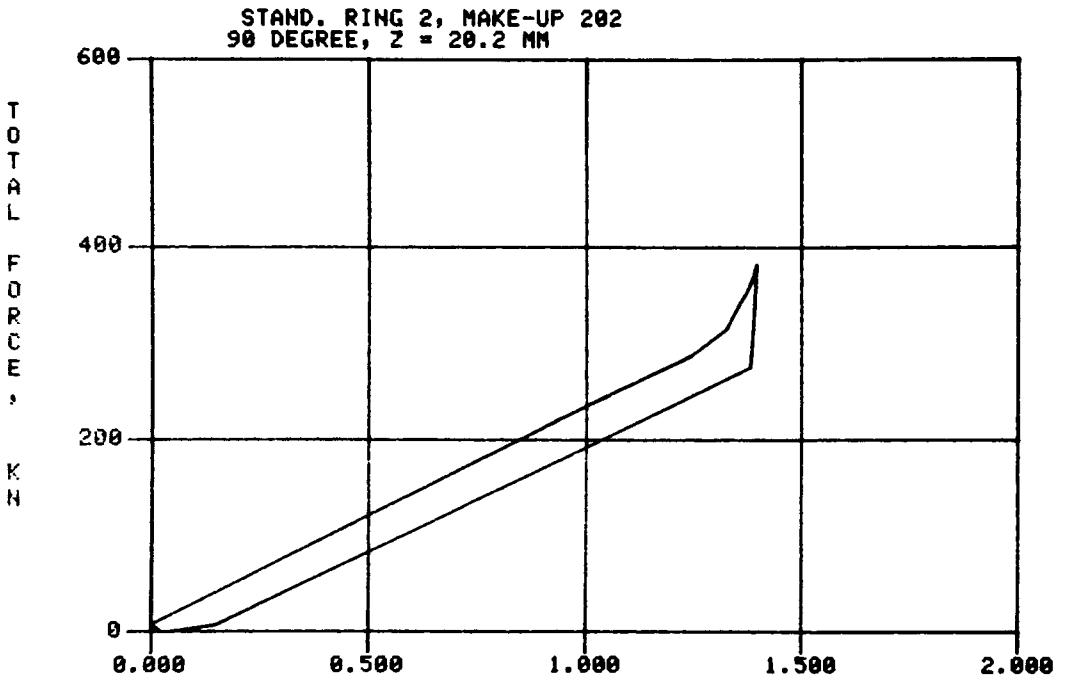

STAND. RING 2, MAKE-UP 202
90 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN

TABLE , DATA FROM TEST 204 SCAN 1. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.7 K. TIME 14/10/ 0

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		-0.				-0.	-0.	-0.
DIAMETER								
MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE								
MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		0.00		0.00		0.00	0.00	0.00
STRAIN UM/M								
AXIAL	U	172.	23.	1.	-53.			36.
HOOP	U	-67.	-105.	-132.	-62.			-91.
COMBINED	U	184.	107.	132.	81.			126.
AXIAL	L	-116.	-6.	-198.	-164.			-121.
HOOP	L	-98.	-119.	101.	-43.			-40.
COMBINED	L	152.	119.	223.	169.			166.

COMMENTS INITIAL READINGS, NO HUB. SEAL ROTATED 120 DEG.
ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 204 SCAN 2, PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.9 K. TIME 14/18/33

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		3.				3.	3.	3.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		0.00		0.00		0.00	0.00	0.00
STRAIN UM/M								
AXIAL	U	190.	45.	7.	-50.			48.
HOOP	U	-143.	-172.	-135.	-62.			-128.
COMBINED	U	238.	178.	136.	79.			158.
AXIAL	L	-101.	-14.	-193.	-191.			-125.
HOOP	L	-134.	-155.	53.	-61.			-74.
COMBINED	L	167.	156.	200.	201.			181.

COMMENTS HUB AND DOME WEIGHT ONLY
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 204 SCAN 3, PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.0 K. TIME 14/31/15

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		66.				65.	65.	65.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		3.33		3.34		3.34	3.27	3.32
STRAIN UM/M								
AXIAL	U	414.	341.	184.	180.			280.
HOOP	U	-1447.	-1600.	-1376.	-1425.			-1462.
COMBINED	U	1505.	1636.	1388.	1436.			1491.
AXIAL	L	-712.	-592.	-861.	-883.			-762.
HOOP	L	-1214.	-1262.	-992.	-1162.			-1157.
COMBINED	L	1407.	1394.	1313.	1459.			1393.

COMMENTS NO DIAMETRAL MEASUREMENTS THIS TEST
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 204 SCAN 4, PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.0 K. TIME 14/34/47

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		74.				75.	74.	74.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		3.87		3.82		3.88	3.81	3.85
STRAIN UM/M								
AXIAL	U	459.	391.	228.	254.			333.
HOOP	U	-1604.	-1814.	-1565.	-1645.			-1657.
COMBINED	U	1668.	1855.	1581.	1664.			1692.
AXIAL	L	-803.	-677.	-951.	-965.			-849.
HOOP	L	-1368.	-1434.	-1143.	-1323.			-1317.
COMBINED	L	1586.	1586.	1486.	1637.			1574.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 204 SCAN 5. PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.7 K. TIME 15/37/46

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		84.				84.	84.	84.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		4.32		4.30		4.41	4.31	4.34
STRAIN UM/M								
AXIAL	U	488.	447.	292.	269.			374.
HOOP	U	-1758.	-1986.	-1808.	-1865.			-1854.
COMBINED	U	1824.	2036.	1831.	1885.			1894.
AXIAL	L	-924.	-762.	-1062.	-1082.			-958.
HOOP	L	-1546.	-1615.	-1281.	-1484.			-1481.
COMBINED	L	1801.	1786.	1664.	1836.			1772.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 204 SCAN 6, PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.8 K. TIME 15/50/31

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		92.				92.	92.	92.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		4.72		4.69		4.81	4.70	4.73
STRAIN UM/M								
AXIAL	U	499.	456.	356.	319.			408.
HOOP	U	-1847.	-2066.	-1974.	-1996.			-1971.
COMBINED	U	1913.	2115.	2006.	2021.			2014.
AXIAL	L	-1008.	-829.	-1119.	-1133.			-1022.
HOOP	L	-1653.	-1719.	-1407.	-1596.			-1594.
COMBINED	L	1936.	1909.	1798.	1958.			1900.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 204 SCAN 7, PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.9 K. TIME 15/57/ 3

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		100.				101.	100.	100.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		5.09		4.99		5.12	5.13	5.08
STRAIN UM/M								
AXIAL	U	471.	478.	405.	390.			436.
HOOP	U	-1990.	-2168.	-2148.	-2137.			-2111.
COMBINED	U	2045.	2220.	2186.	2172.			2156.
AXIAL	L	-1097.	-903.	-1183.	-1189.			-1093.
HOOP	L	-1770.	-1822.	-1538.	-1725.			-1714.
COMBINED	L	2083.	2034.	1940.	2096.			2038.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 204 SCAN 8. PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.9 K. TIME 16/ 4/47

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		109.				111.	110.	110.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		5.50		5.21		5.25	5.52	5.37
STRAIN UM/M								
AXIAL	U	195.	164.	423.	407.			298.
HOOP	U	-1959.	-2266.	-2255.	-2217.			-2174.
COMBINED	U	1968.	2272.	2294.	2254.			2197.
AXIAL	L	-1192.	-1035.	-1228.	-1232.			-1172.
HOOP	L	-1784.	-1870.	-1619.	-1817.			-1773.
COMBINED	L	2146.	2137.	2032.	2195.			2128.

COMMENTS 30 DEG U AXIAL STRAIN GAGE BAD
ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 204 SCAN 9, PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.9 K. TIME 16/13/39

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		118.				119.	118.	118.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		5.88		5.41		5.28	5.77	5.58
STRAIN UM/M								
AXIAL	U	102.	86.	222.	419.			208.
HOOP	U	-1993.	-2336.	-2343.	-2275.			-2237.
COMBINED	U	1995.	2338.	2353.	2313.			2250.
AXIAL	L	-1243.	-1088.	-1324.	-1282.			-1234.
HOOP	L	-1815.	-1914.	-1678.	-1887.			-1823.
COMBINED	L	2200.	2202.	2137.	2282.			2205.

COMMENTS 60 DEG U AXIAL STRAIN GAGE QUESTIONABLE
ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 204 SCAN 10, PRESSURE .0 KPA
AVERAGE TEMPERATURE 297.0 K. TIME 16/25/37

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		96.				96.	96.	96.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		5.85		5.40		5.24	5.73	5.55
STRAIN UM/M								
AXIAL	U	113.	83.	188.	393.			194.
HOOP	U	-1988.	-2311.	-2313.	-2262.			-2218.
COMBINED	U	1991.	2312.	2321.	2296.			2230.
AXIAL	L	-1229.	-1057.	-1310.	-1302.			-1224.
HOOP	L	-1806.	-1897.	-1656.	-1879.			-1809.
COMBINED	L	2185.	2172.	2111.	2285.			2188.

COMMENTS PROCEEDING DOWNWARD
ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 204 SCAN 11, PRESSURE .0 KPA
AVERAGE TEMPERATURE 297.0 K. TIME 16/33/54

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		76.				76.	76.	76.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		5.77		5.33		5.14	5.70	5.48
STRAIN UM/M								
AXIAL	U	396.	255.	254.	355.			315.
HOOP	U	-1960.	-2232.	-2257.	-2215.			-2166.
COMBINED	U	2000.	2247.	2271.	2243.			2190.
AXIAL	L	-1140.	-974.	-1266.	-1281.			-1165.
HOOP	L	-1802.	-1876.	-1622.	-1843.			-1786.
COMBINED	L	2132.	2113.	2058.	2244.			2137.

COMMENTS SEAL RING NOT COMING FREE
ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 204 SCAN 12, PRESSURE .0 KPA
AVERAGE TEMPERATURE 297.1 K. TIME 16/42/41

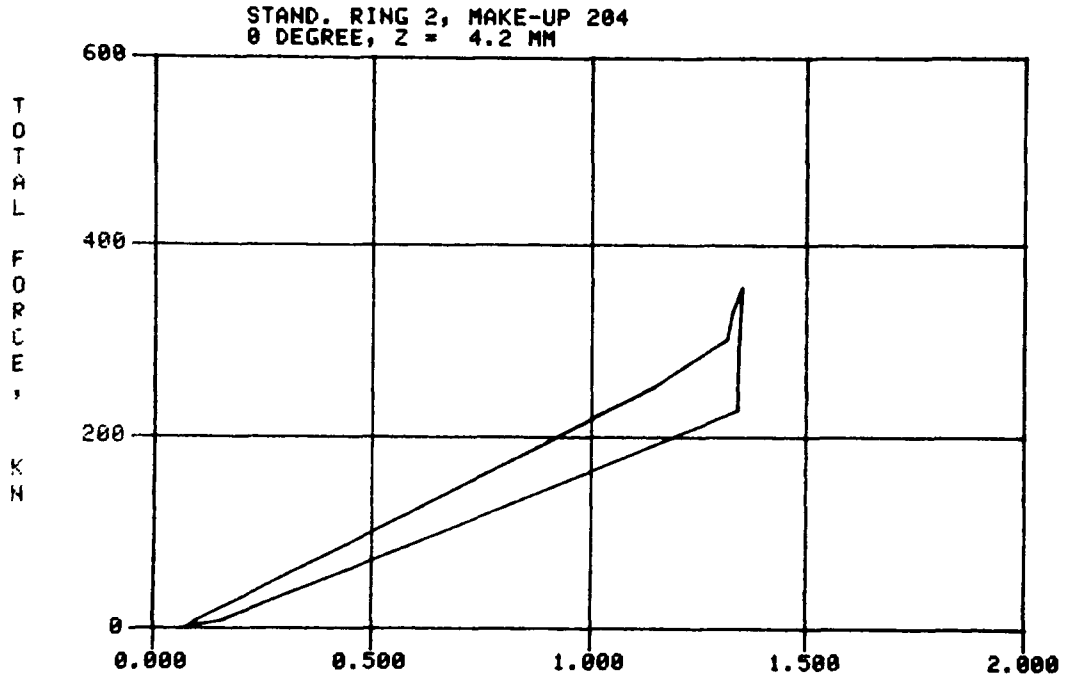
ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		3.				3.	3.	3.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		0.00		0.00		0.00	0.00	0.00
STRAIN UM/M								
AXIAL	U	248.	41.	23.	-42.			67.
HOOP	U	-202.	-221.	-238.	-152.			-203.
COMBINED	U	319.	225.	239.	158.			235.
AXIAL	L	-149.	-46.	-261.	-243.			-175.
HOOP	L	-215.	-238.	49.	-133.			-134.
COMBINED	L	261.	243.	266.	277.			262.

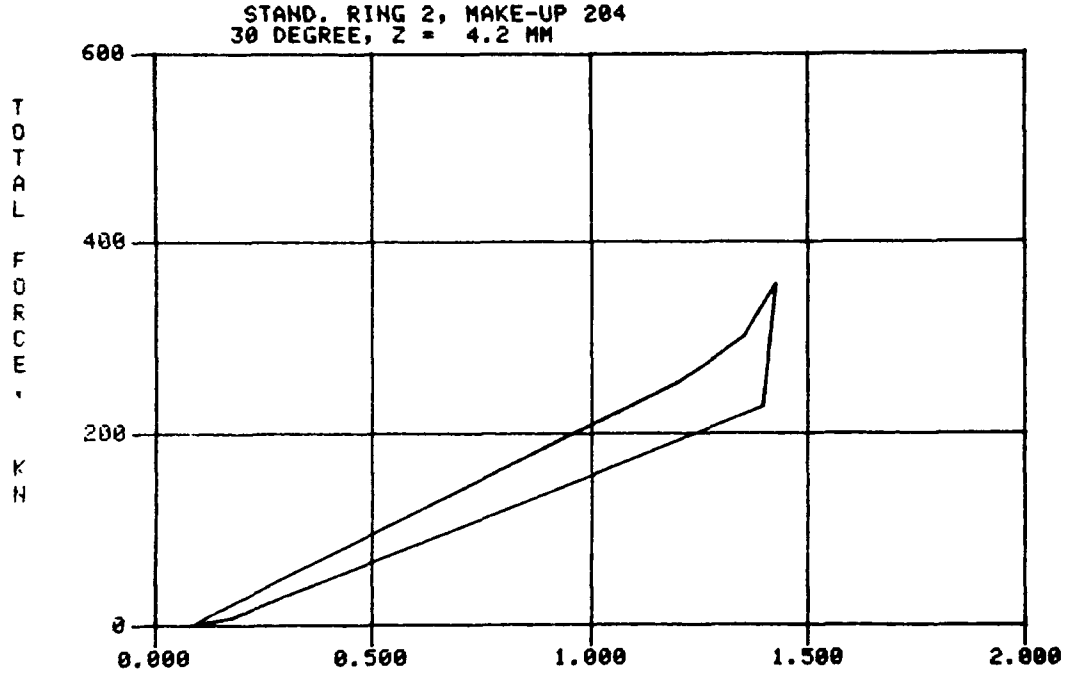
COMMENTS HUB AND DOME WEIGHT ONLY
ALL DATA CORRECTED TO 294.5 K.

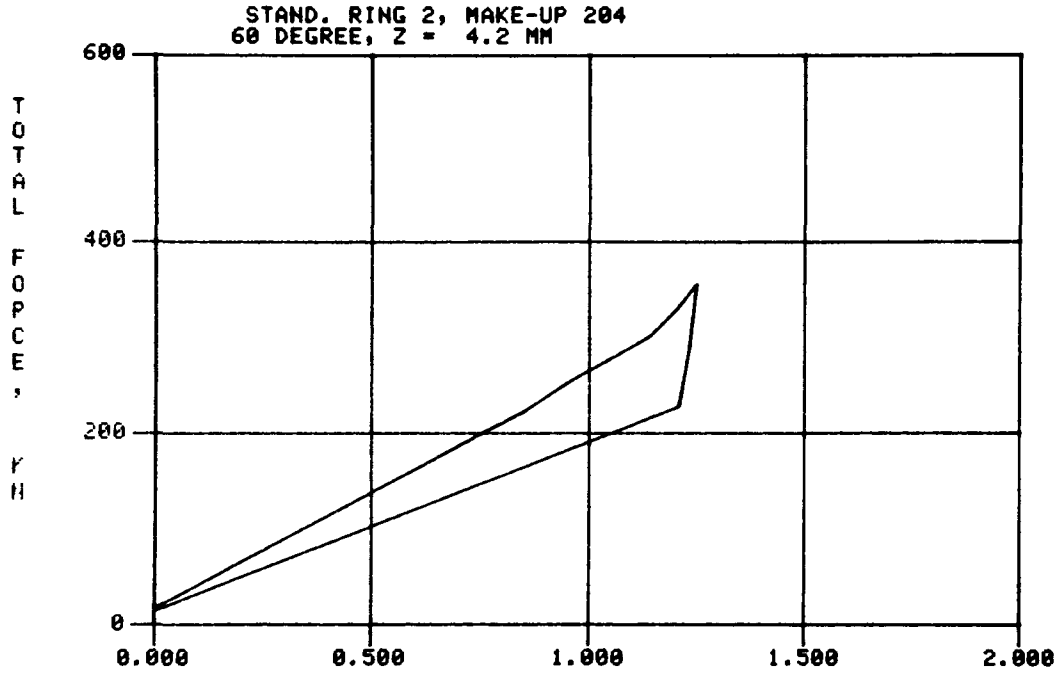
TABLE , DATA FROM TEST 204 SCAN 13. PRESSURE .0 KPA
AVERAGE TEMPERATURE 297.1 K. TIME 16/46/17

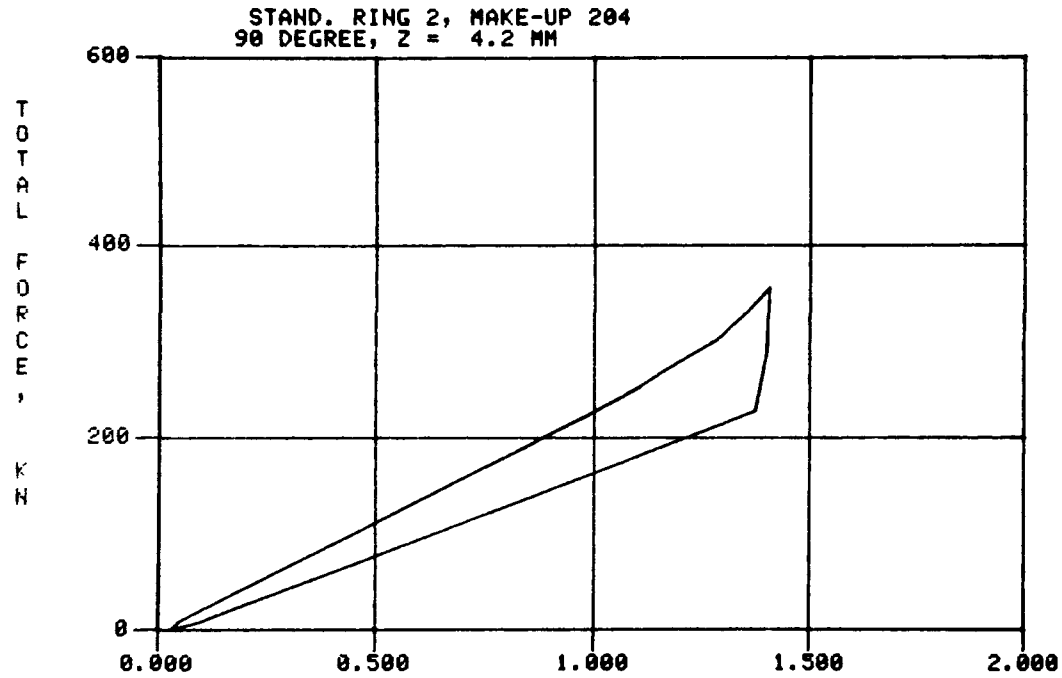
ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		-0.				-0.	-0.	-0.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		0.00		0.00		0.00	0.00	0.00
STRAIN UM/M								
AXIAL	U	219.	29.	10.	-43.			54.
HOOP	U	-25.	-68.	-134.	-63.			-73.
COMBINED	U	220.	74.	134.	76.			126.
AXIAL	L	-89.	8.	-217.	-160.			-114.
HOOP	L	-85.	-106.	125.	-33.			-25.
COMBINED	L	123.	106.	250.	163.			161.

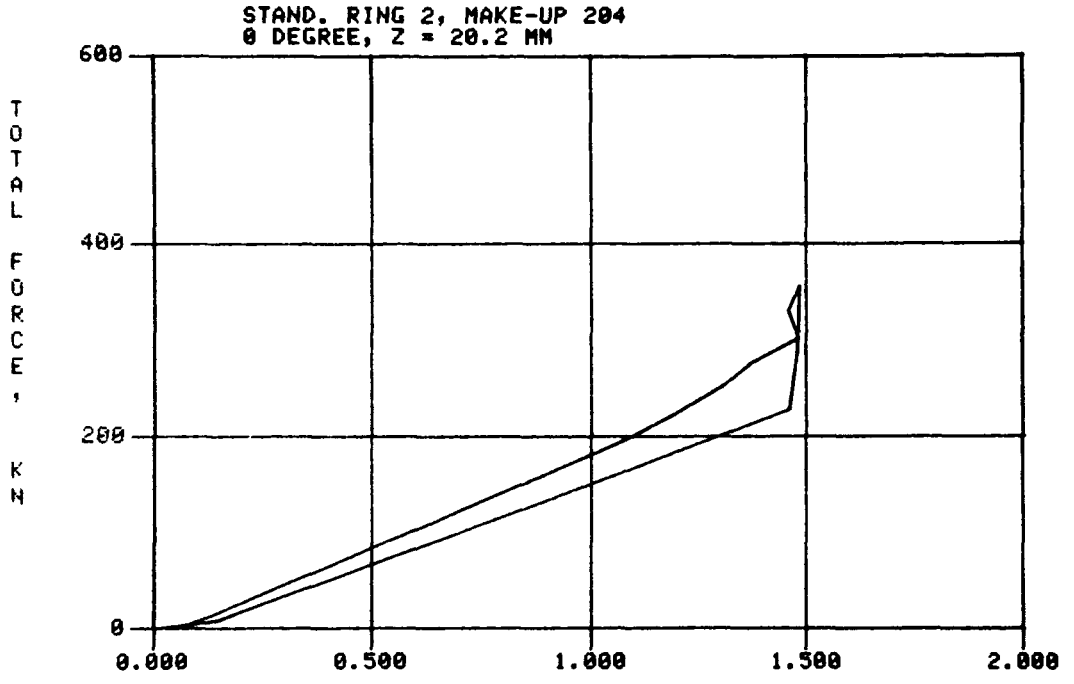
COMMENTS FINAL READINGS, NO WEIGHT
ALL DATA CORRECTED TO 294.5 K.

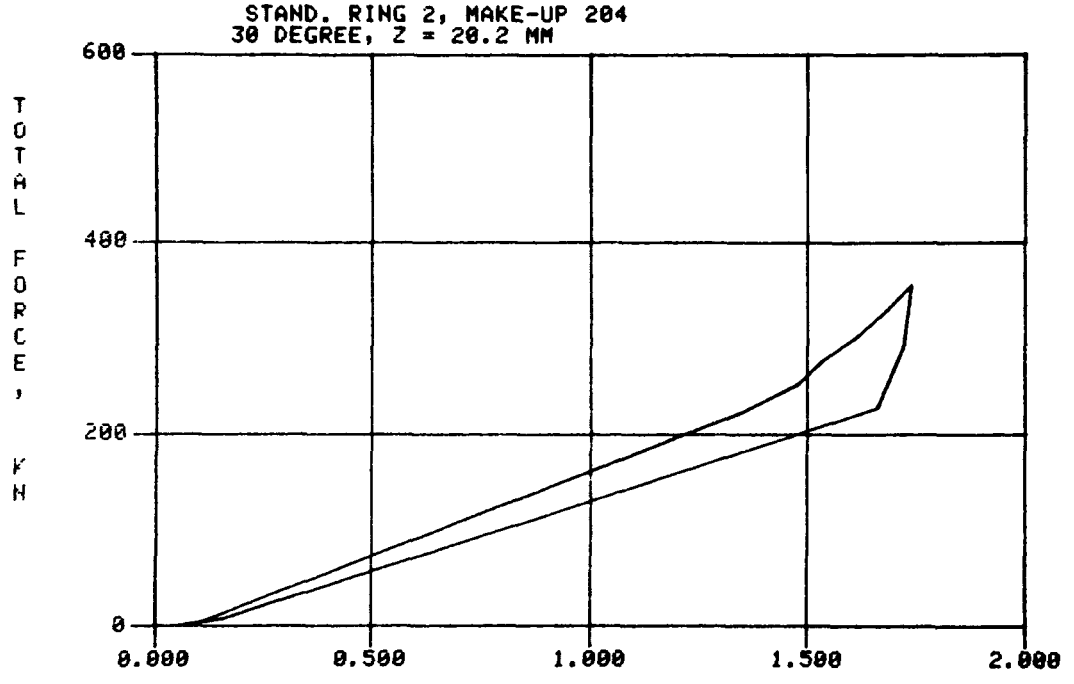

STAND. RING 2, MAKE-UP 204
0 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN

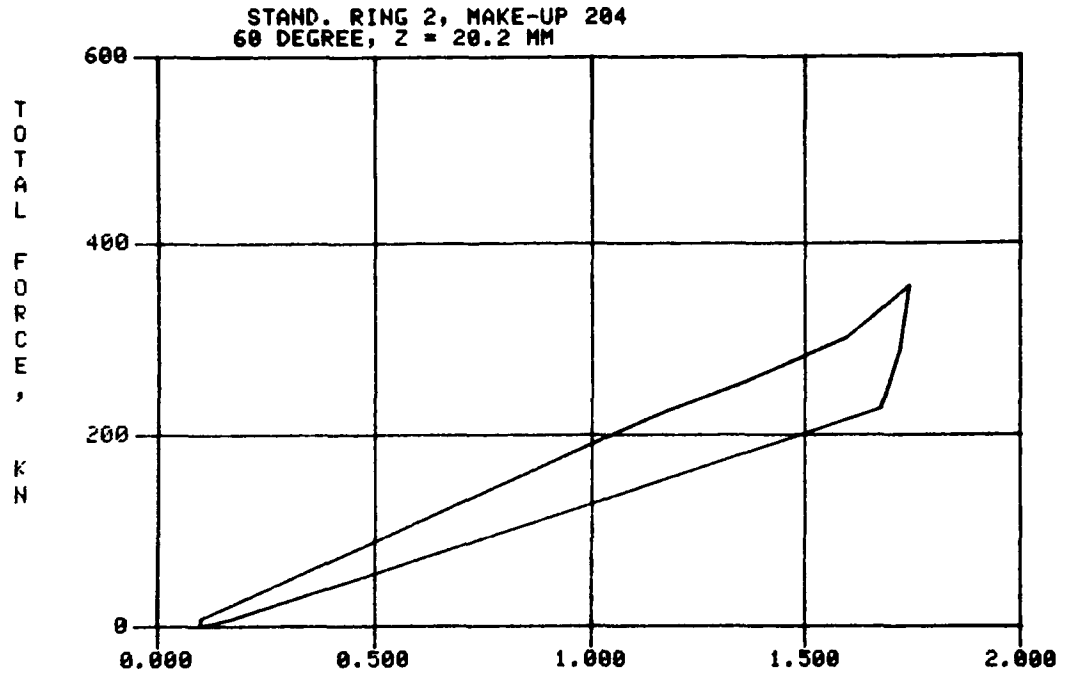

STAND. RING 2, MAKE-UP 204
30 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN

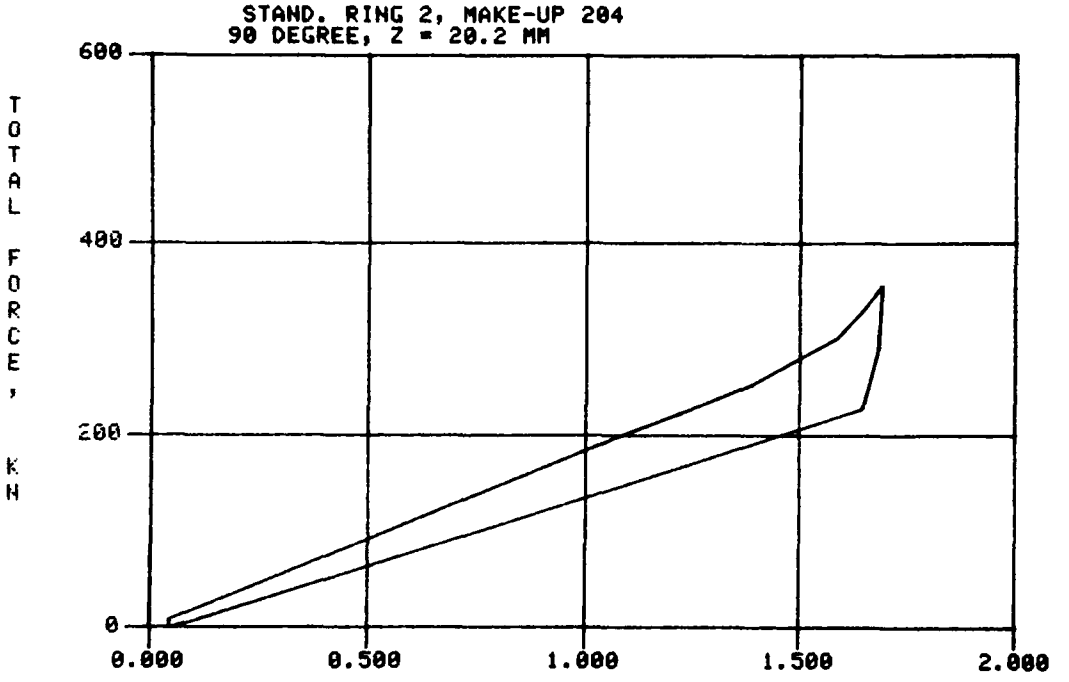

STAND. RING 2, MAKE-UP 204
60 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


STAND. RING 2, MAKE-UP 204
90 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


STAND. RING 2, MAKE-UP 204
0 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


STAND. RING 2, MAKE-UP 204
30 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


STAND. RING 2, MAKE-UP 204
60 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


STAND. RING 2, MAKE-UP 204
90 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN

APPENDIX B

Measured Data From Seal 7

TABLE , DATA FROM TEST 701 SCAN 1. PRESSURE 0.0 KPA
AVERAGE TEMPERATURE 291.9 K. TIME 292 09/41/49

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		0.				0.	0.	0.
DIAMETER MM	U	742.99	742.99	742.98	742.98			742.98
	L	742.95	742.93	742.93	742.94			742.94
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		0.00	0.00	0.00	0.00	0.00	0.00	0.00
STRAIN UM/M								
AXIAL	U	0.	0.	0.	0.			0.
HOOP	U	0.	0.	0.	0.			0.
COMBINED	U	0.	0.	0.	0.			0.
AXIAL	L	0.	0.	0.	0.			0.
HOOP	L	0.	0.	0.	0.			0.
COMBINED	L	0.	0.	0.	0.			0.

COMMENTS NO FORCE ON SEAL
ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 701 SCAN 2, PRESSURE 0.0 KPA
AVERAGE TEMPERATURE 292.2 K. TIME 292 10/44/12

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		38.				38.	38.	38.
DIAMETER MM	U	742.55	742.39	742.32	742.37			742.41
	L	742.46	742.41	742.27	742.36			742.38
DIAMETRIAL CHANGE MM	U	-.44	-.60	-.66	-.62			-.58
	L	-.49	-.52	-.67	-.58			-.56
AXIAL CLOSURE MM		2.54	2.76	2.69	2.52	2.20	1.44	2.36
STRAIN UM/M								
AXIAL	U	24.	56.	96.	56.			58.
HOOP	U	-481.	-650.	-826.	-754.			-678.
COMBINED	U	482.	652.	832.	756.			680.
AXIAL	L	-385.	-201.	-273.	-345.			-301.
HOOP	L	-593.	-698.	-626.	-642.			-640.
COMBINED	L	707.	726.	682.	728.			711.

COMMENTS

ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 701 SCAN 3. PRESSURE 0.0 KPA
AVERAGE TEMPERATURE 292.5 K. TIME 292 11/16/37

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		65.				65.	65.	65.
DIAMETER MM	U	742.25	742.04	741.87	741.91			742.02
	L	742.10	741.92	741.97	741.97			741.99
DIAMETRIAL CHANGE MM	U	-.74	-.95	-1.11	-1.07			-.97
	L	-.85	-1.02	-.96	-.97			-.95
AXIAL CLOSURE MM		4.33	4.60	4.46	4.24	3.85	2.86	4.06
STRAIN UM/M								
AXIAL	U	48.	72.	168.	128.			104.
HOOP	U	-922.	-1075.	-1404.	-1347.			-1187.
COMBINED	U	924.	1077.	1414.	1353.			1192.
AXIAL	L	-569.	-369.	-465.	-569.			-493.
HOOP	L	-1059.	-1179.	-1107.	-1155.			-1125.
COMBINED	L	1202.	1235.	1201.	1288.			1231.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 701 SCAN 4. PRESSURE 0.0 KPA
AVERAGE TEMPERATURE 292.9 K. TIME 292 11/36/38

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		93.				91.	92.	92.
DIAMETER MM	U	741.94	741.76	741.56	741.61			741.72
	L	741.78	741.71	741.66	741.64			741.70
DIAMETRIAL CHANGE MM	U	-1.06	-1.23	-1.42	-1.37			-1.27
	L	-1.17	-1.22	-1.28	-1.30			-1.24
AXIAL CLOSURE MM		5.68	5.80	5.58	5.38	5.10	4.49	5.34
STRAIN UM/M								
AXIAL	U	48.	88.	233.	209.			144.
HOOP	U	-1275.	-1500.	-1869.	-1780.			-1606.
COMBINED	U	1276.	1502.	1883.	1793.			1614.
AXIAL	L	-746.	-529.	-642.	-754.			-668.
HOOP	L	-1492.	-1628.	-1556.	-1588.			-1566.
COMBINED	L	1668.	1712.	1683.	1758.			1705.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 701 SCAN 5. PRESSURE 0.0 KPA
AVERAGE TEMPERATURE 293.9 K. TIME 292 12/53/50

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		116.				106.	108.	110.
DIAMETER MM	U	741.68	741.54	741.42	741.45			741.52
	L	741.58	741.53	741.48	741.47			741.51
DIAMETRIAL CHANGE MM	U	-1.31	-1.44	-1.56	-1.53			-1.46
	L	-1.37	-1.41	-1.46	-1.47			-1.43
AXIAL CLOSURE MM		5.98	5.99	5.85	5.89	5.88	5.64	5.87
STRAIN UM/M								
AXIAL	U	192.	152.	273.	233.			213.
HOOP	U	-1516.	-1813.	-2109.	-2053.			-1873.
COMBINED	U	1528.	1819.	2127.	2066.			1885.
AXIAL	L	-634.	-529.	-738.	-850.			-688.
HOOP	L	-1676.	-1829.	-1692.	-1788.			-1746.
COMBINED	L	1792.	1904.	1846.	1980.			1880.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 701 SCAN 6. PRESSURE 0.0 KPA
AVERAGE TEMPERATURE 294.2 K. TIME 292 13/14/04

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		118.				118.	116.	117.
DIAMETER MM	U	741.53	741.47	741.40	741.38			741.44
	L	741.50	741.46	741.41	741.38			741.44
DIAMETRIAL CHANGE MM	U	-1.46	-1.52	-1.58	-1.61			-1.54
	L	-1.45	-1.47	-1.52	-1.57			-1.50
AXIAL CLOSURE MM		6.00	5.97	5.91	6.13	6.29	6.18	6.08
STRAIN UM/M								
AXIAL	U	209.	184.	265.	241.			225.
HOOP	U	-1620.	-1933.	-2206.	-2189.			-1987.
COMBINED	U	1633.	1942.	2221.	2203.			2000.
AXIAL	L	-722.	-545.	-802.	-890.			-740.
HOOP	L	-1772.	-1909.	-1756.	-1893.			-1833.
COMBINED	L	1914.	1985.	1931.	2092.			1980.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 701 SCAN 7. PRESSURE 0.0 KPA
AVERAGE TEMPERATURE 294.2 K. TIME 292 13/27/12

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		125.				124.	122.	124.
DIAMETER MM	U	741.51	741.44	741.39	741.38			741.43
	L	741.48	741.43	741.39	741.37			741.42
DIAMETRIAL CHANGE MM	U	-1.48	-1.55	-1.59	-1.60			-1.56
	L	-1.47	-1.51	-1.54	-1.58			-1.52
AXIAL CLOSURE MM		6.02	5.97	5.93	6.14	6.34	6.32	6.12
STRAIN UM/M								
AXIAL	U	217.	168.	273.	241.			225.
HOOP	U	-1636.	-1949.	-2214.	-2189.			-1997.
COMBINED	U	1650.	1956.	2230.	2203.			2010.
AXIAL	L	-618.	-545.	-786.	-906.			-714.
HOOP	L	-1788.	-1917.	-1588.	-1901.			-1798.
COMBINED	L	1892.	1993.	1772.	2106.			1941.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 701 SCAN 8. PRESSURE 0.0 KPA
AVERAGE TEMPERATURE 294.2 K. TIME 293 11/32/25

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		130.				128.	128.	129.
DIAMETER MM	U	741.50	741.42	741.37	741.36			741.41
	L	741.48	741.41	741.38	741.34			741.40
DIAMETRIAL CHANGE MM	U	-1.49	-1.57	-1.61	-1.62			-1.57
	L	-1.47	-1.52	-1.56	-1.61			-1.54
AXIAL CLOSURE MM		6.04	5.96	5.93	6.15	6.36	6.45	6.15
STRAIN UM/M								
AXIAL	U	233.	136.	257.	217.			211.
HOOP	U	-1692.	-1981.	-2230.	-2197.			-2025.
COMBINED	U	1708.	1986.	2244.	2208.			2037.
AXIAL	L	-690.	-602.	-778.	-922.			-748.
HOOP	L	-1796.	-1949.	-1877.	-1925.			-1887.
COMBINED	L	1924.	2040.	2032.	2134.			2032.

COMMENTS DOME INSTALLED, LEAK RATE LESS THAN 1X10E-6 ATM CC/S
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 701 SCAN 9. PRESSURE .0 KPA
AVERAGE TEMPERATURE 294.2 K. TIME 293 11/37/13

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		123.				125.	120.	122.
DIAMETER								
MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE								
MM	U	-742.99	-742.99	-742.98	-742.98			-742.98
	L	-742.95	-742.93	-742.93	-742.94			-742.94
AXIAL CLOSURE MM		6.02	5.94	5.92	6.14	6.38	6.48	6.14
STRAIN UM/M								
AXIAL	U	233.	152.	257.	217.			215.
HOOP	U	-1684.	-1973.	-2222.	-2189.			-2017.
COMBINED	U	1700.	1979.	2236.	2200.			2029.
AXIAL	L	-722.	-585.	-770.	-898.			-744.
HOOP	L	-1780.	-1933.	-1869.	-1909.			-1873.
COMBINED	L	1921.	2020.	2021.	2110.			2018.

COMMENTS PROCEEDING DOWNWARD
ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 701 SCAN 10. PRESSURE .0 KPA
AVERAGE TEMPERATURE 294.2 K. TIME 293 11/41/59

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		121.				118.	116.	118.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	-742.99	-742.99	-742.98	-742.98			-742.98
	L	-742.95	-742.93	-742.93	-742.94			-742.94
AXIAL CLOSURE MM		6.02	5.94	5.92	6.14	6.38	6.49	6.15
STRAIN UM/M								
AXIAL	U	241.	144.	265.	217.			217.
HOOP	U	-1700.	-1989.	-2230.	-2173.			-2023.
COMBINED	U	1717.	1994.	2245.	2184.			2035.
AXIAL	L	-642.	-593.	-778.	-914.			-732.
HOOP	L	-1796.	-1965.	-1684.	-1909.			-1839.
COMBINED	L	1908.	2053.	1855.	2116.			1983.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 701 SCAN 11. PRESSURE .0 KPA
AVERAGE TEMPERATURE 294.2 K. TIME 293 11/44/53

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		113.				114.	115.	114.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	-742.99	-742.99	-742.98	-742.98			-742.98
	L	-742.95	-742.93	-742.93	-742.94			-742.94
AXIAL CLOSURE MM		6.01	5.94	5.92	6.13	6.37	6.49	6.14
STRAIN UM/M								
AXIAL	U	249.	144.	273.	217.			221.
HOOP	U	-1692.	-1981.	-2214.	-2173.			-2015.
COMBINED	U	1710.	1986.	2230.	2184.			2028.
AXIAL	L	-634.	-585.	-770.	-906.			-724.
HOOP	L	-1788.	-1949.	-1676.	-1909.			-1831.
COMBINED	L	1897.	2035.	1845.	2113.			1972.

COMMENTS SEAL NOT COMING FREE
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 701 SCAN 12. PRESSURE .0 KPA
AVERAGE TEMPERATURE 294.2 K. TIME 293 11/48/12

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		107.				108.	105.	107.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	-742.99	-742.99	-742.98	-742.98			-742.98
	L	-742.95	-742.93	-742.93	-742.94			-742.94
AXIAL CLOSURE MM		5.99	5.91	5.90	6.11	6.35	6.47	6.12
STRAIN UM/M								
AXIAL	U	233.	152.	249.	209.			211.
HOOP	U	-1700.	-1989.	-2214.	-2165.			-2017.
COMBINED	U	1716.	1995.	2227.	2175.			2028.
AXIAL	L	-722.	-593.	-778.	-930.			-756.
HOOP	L	-1796.	-1957.	-1708.	-1925.			-1847.
COMBINED	L	1936.	2045.	1877.	2138.			1999.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 701 SCAN 13. PRESSURE .0 KPA
AVERAGE TEMPERATURE 294.2 K. TIME 293 11/50/58

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		82.				85.	83.	83.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	-742.99	-742.99	-742.98	-742.98			-742.98
	L	-742.95	-742.93	-742.93	-742.94			-742.94
AXIAL CLOSURE MM		5.94	5.88	5.89	6.10	6.33	6.43	6.09
STRAIN UM/M								
AXIAL	U	209.	128.	225.	176.			184.
HOOP	U	-1684.	-1981.	-2197.	-2149.			-2003.
COMBINED	U	1697.	1985.	2209.	2157.			2012.
AXIAL	L	-826.	-593.	-786.	-930.			-784.
HOOP	L	-1796.	-1941.	-1861.	-1901.			-1875.
COMBINED	L	1977.	2030.	2020.	2116.			2036.

COMMENTS

ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 701 SCAN 14. PRESSURE .0 KPA
AVERAGE TEMPERATURE 294.2 K. TIME 293 11/53/07

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		68.				71.	73.	71.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	-742.99	-742.99	-742.98	-742.98			-742.98
	L	-742.95	-742.93	-742.93	-742.94			-742.94
AXIAL CLOSURE MM		5.87	5.84	5.87	6.09	6.29	6.34	6.05
STRAIN UM/M AXIAL	U	209.	128.	225.	152.			178.
HOOP	U	-1684.	-1981.	-2173.	-2125.			-1991.
COMBINED	U	1697.	1985.	2185.	2131.			1999.
AXIAL	L	-826.	-585.	-786.	-922.			-780.
HOOP	L	-1796.	-1949.	-1845.	-1901.			-1873.
COMBINED	L	1977.	2035.	2005.	2113.			2032.

COMMENTS SEAL BEGINNING TO RELEASE
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 701 SCAN 15. PRESSURE .0 KPA
AVERAGE TEMPERATURE 294.5 K. TIME 293 12/00/04

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		60.				54.	60.	58.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	-742.99	-742.99	-742.98	-742.98			-742.98
	L	-742.95	-742.93	-742.93	-742.94			-742.94
AXIAL CLOSURE MM		5.10	5.19	5.32	5.56	5.71	5.39	5.38
STRAIN UM/M								
AXIAL	U	233.	120.	176.	112.			160.
HOOP	U	-1596.	-1780.	-1893.	-1772.			-1760.
COMBINED	U	1613.	1784.	1901.	1776.			1769.
AXIAL	L	-746.	-497.	-698.	-834.			-694.
HOOP	L	-1628.	-1740.	-1620.	-1652.			-1660.
COMBINED	L	1791.	1810.	1764.	1851.			1804.

COMMENTS SEAL RELEASING FREELY
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 701 SCAN 16. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.2 K. TIME 293 12/59/37

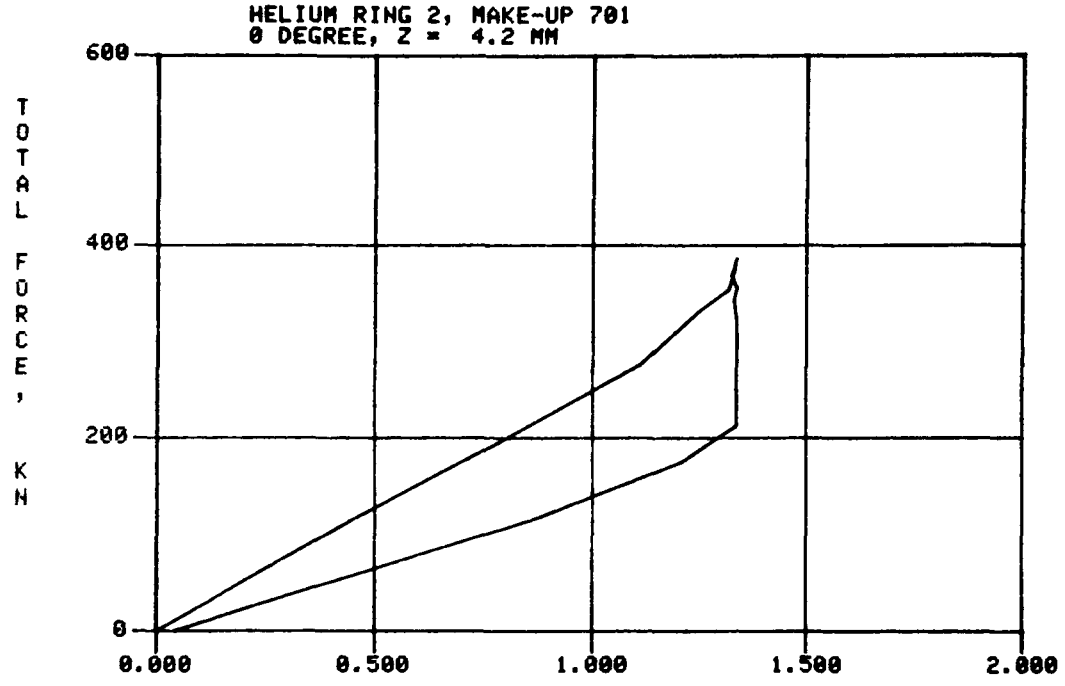
ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		39.				40.	40.	40.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	-742.99	-742.99	-742.98	-742.98			-742.98
	L	-742.95	-742.93	-742.93	-742.94			-742.94
AXIAL CLOSURE MM		3.33	3.54	3.85	4.24	4.48	3.91	3.89
STRAIN UM/M								
AXIAL	U	241.	120.	176.	104.			160.
HOOP	U	-1203.	-1404.	-1516.	-1363.			-1371.
COMBINED	U	1227.	1409.	1526.	1367.			1382.
AXIAL	L	-537.	-305.	-537.	-682.			-515.
HOOP	L	-1187.	-1291.	-1123.	-1219.			-1205.
COMBINED	L	1303.	1327.	1245.	1397.			1318.

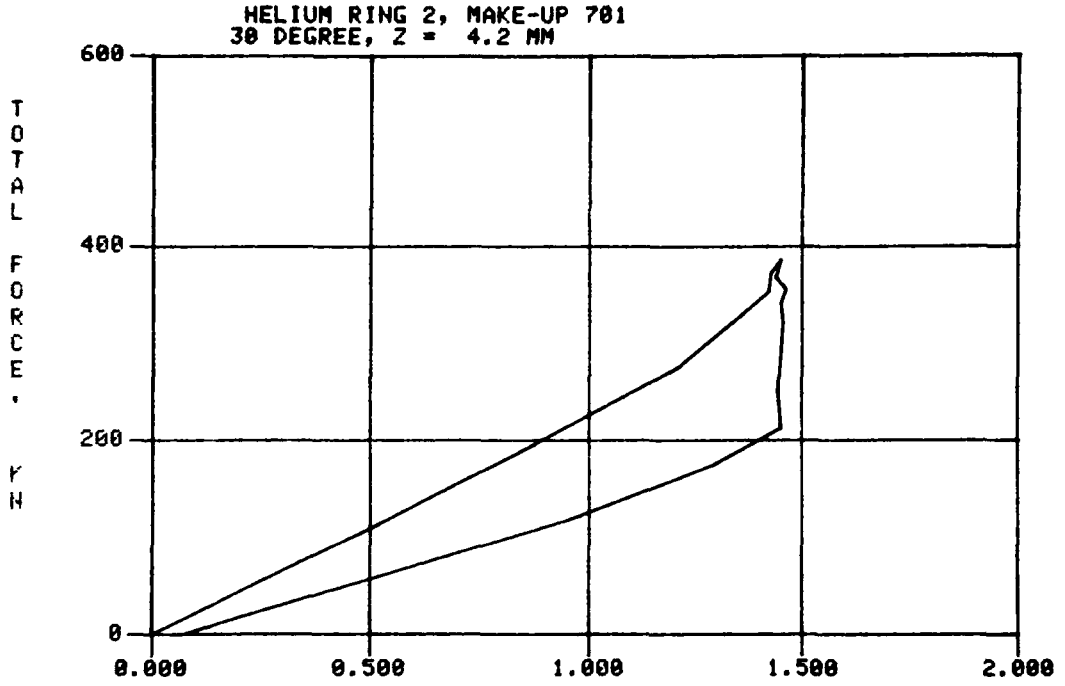
COMMENTS
ALL DATA CORRECTED TO 294.5 K.

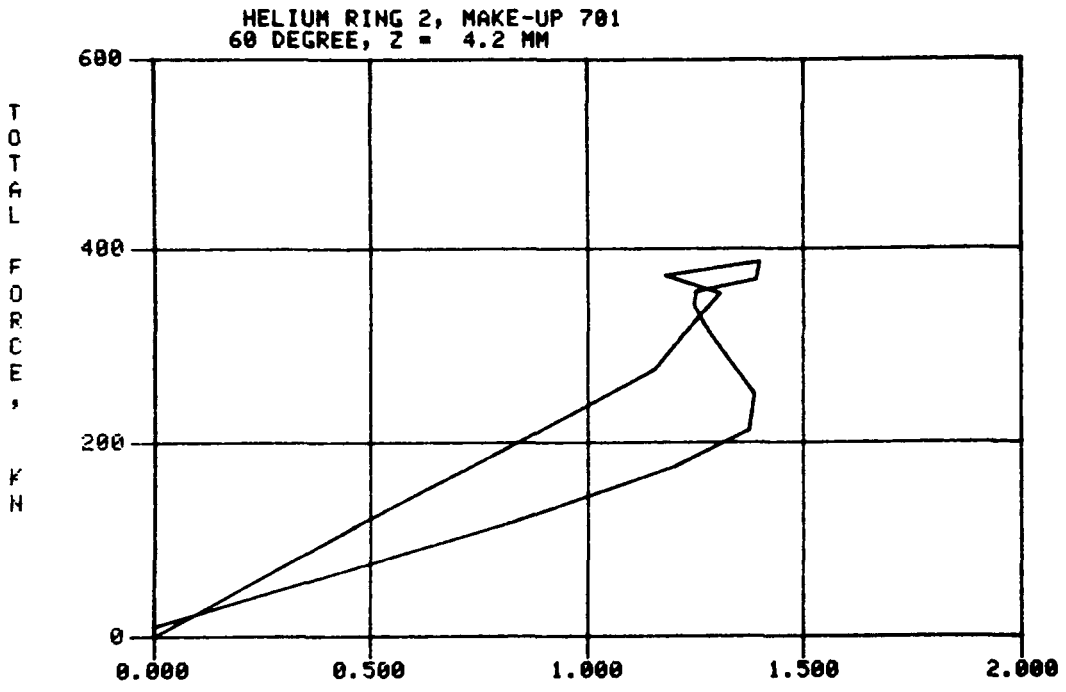
TABLE . DATA FROM TEST 701 SCAN 17. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.2 K. TIME 293 13/03/51

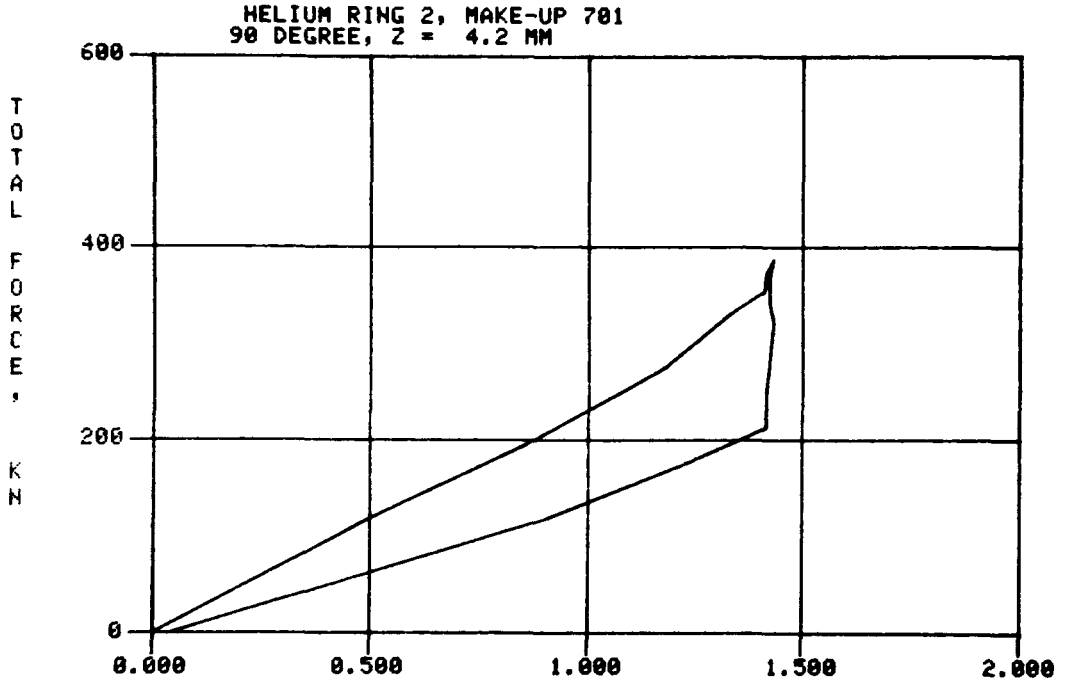
ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		-0.				-0.	-0.	-0.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	-742.99	-742.99	-742.98	-742.98			-742.98
	L	-742.95	-742.93	-742.93	-742.94			-742.94
AXIAL CLOSURE MM		0.00	0.00	0.00	0.00	0.00	0.00	0.00
STRAIN UM/M								
AXIAL	U	225.	24.	32.	8.			72.
HOOP	U	-16.	-72.	-96.	-72.			-64.
COMBINED	U	225.	76.	101.	73.			119.
AXIAL	L	16.	112.	-88.	-128.			-22.
HOOP	L	-56.	-96.	104.	-56.			-26.
COMBINED	L	58.	148.	137.	140.			121.

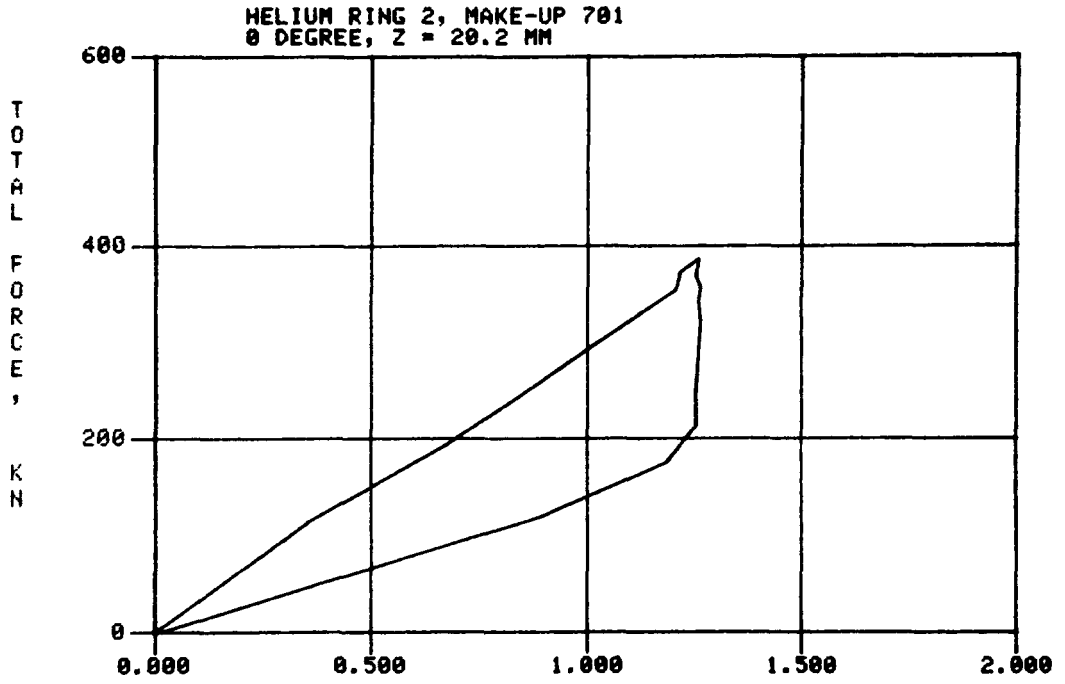
COMMENTS NO FORCE ON SEAL
ALL DATA CORRECTED TO 294.5 K.

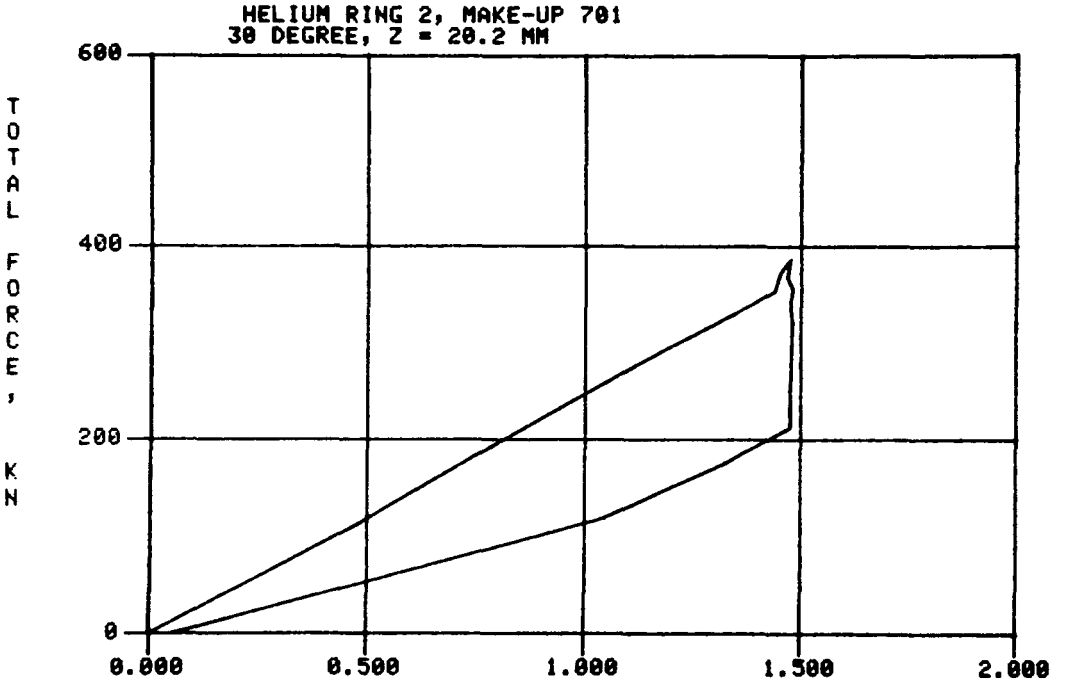

HELIUM RING 2, MAKE-UP 701
0 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN

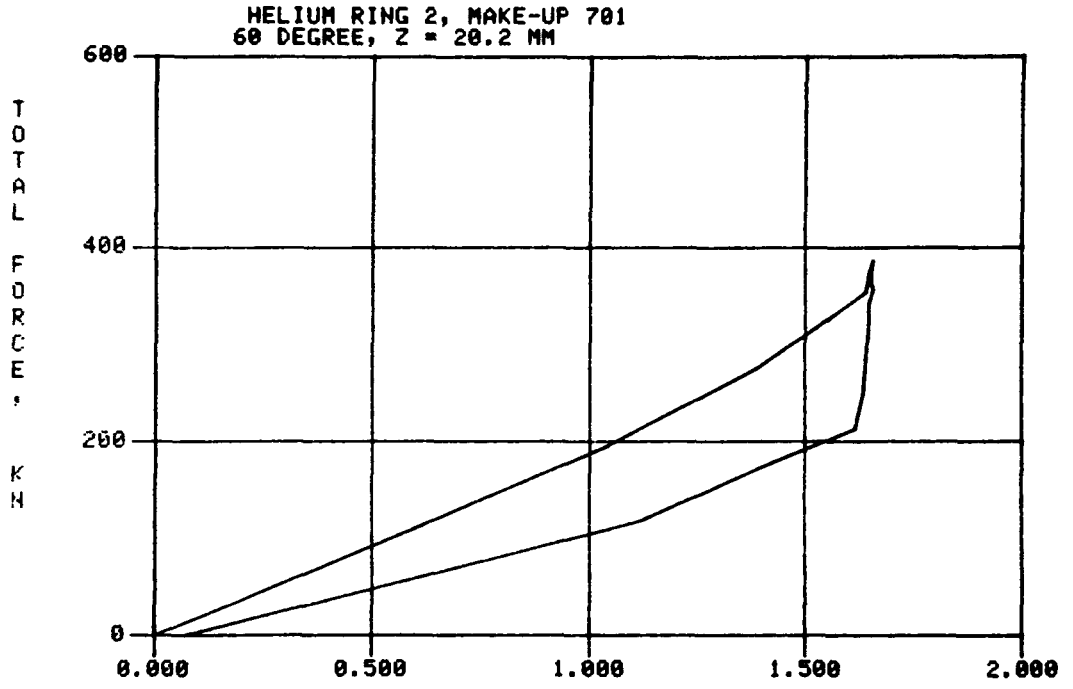

HELIUM RING 2, MAKE-UP 701
30 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN

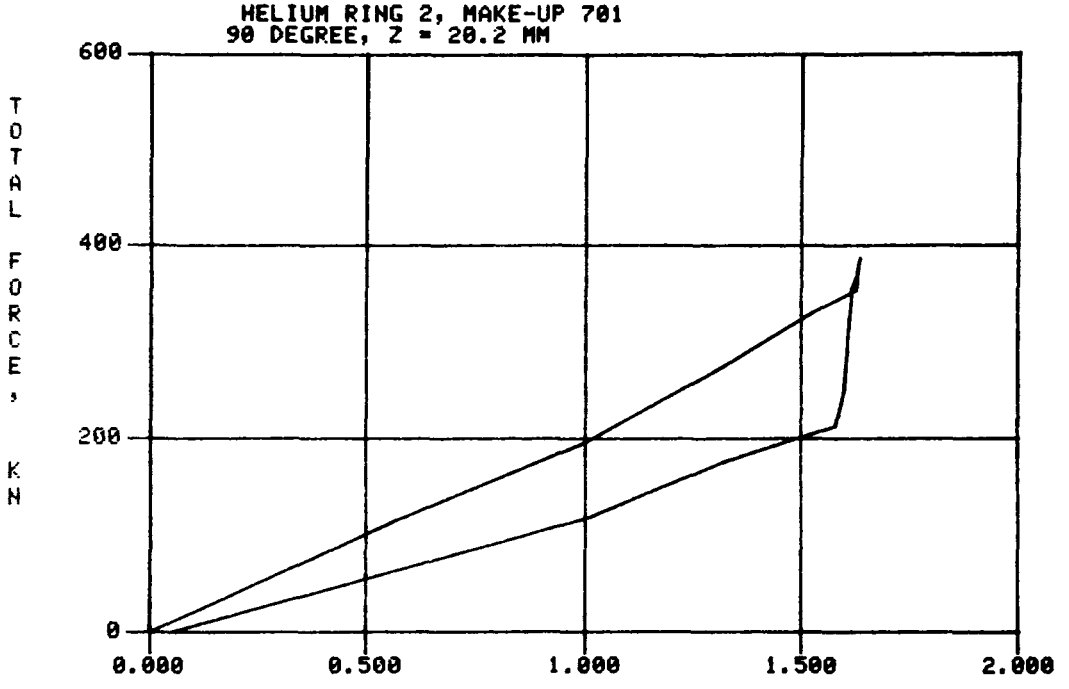

HELIUM RING 2, MAKE-UP 701
60 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


HELIUM RING 2, MAKE-UP 701
90 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


HELIUM RING 2, MAKE-UP 701
0 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


HELIUM RING 2, MAKE-UP 701
30 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


HELIUM RING 2, MAKE-UP 701
60 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


HELIUM RING 2, MAKE-UP 701
90 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN

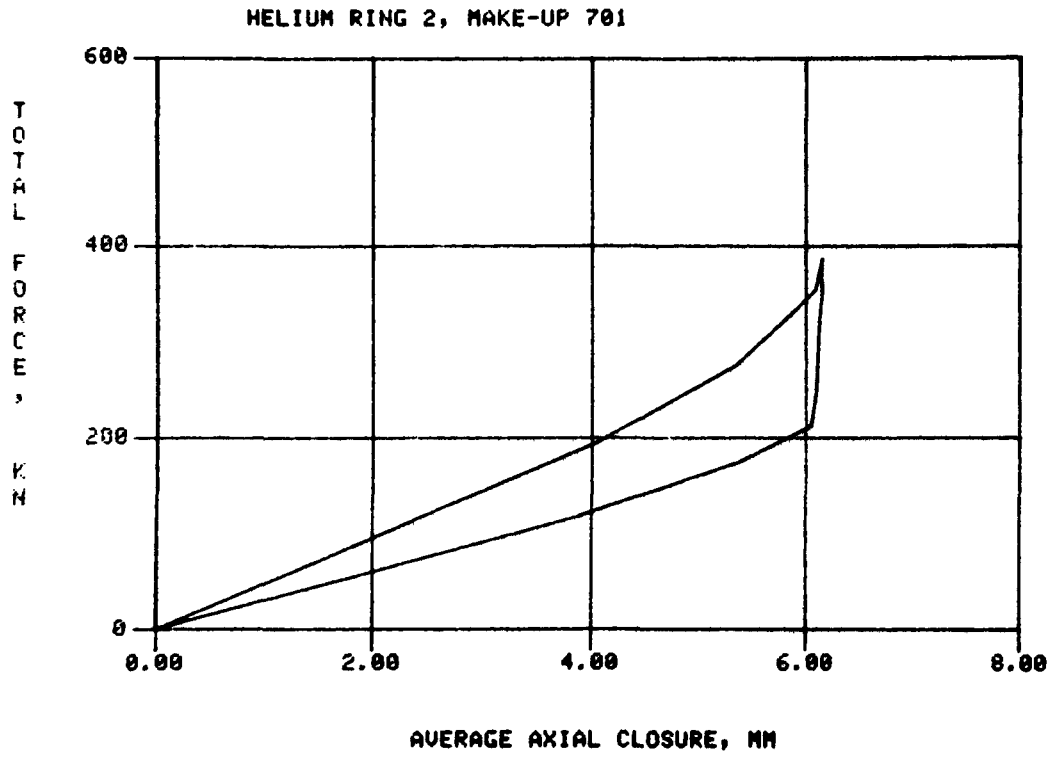

HELIUM RING 2, MAKE-UP 701
TOTAL FORCE, KN
600
400
200
0
0.00
2.00
4.00
6.00
8.00
AVERAGE AXIAL CLOSURE, MM

TABLE , DATA FROM TEST 702 SCAN 1. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.9 K. TIME 310 12/46/41

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		-0.				-0.	-0.	-0.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		0.00	0.00	0.00	0.00	0.00	0.00	0.00
STRAIN UM/M								
AXIAL	U	225.	24.	32.	8.			72.
HOOP	U	-16.	-72.	-96.	-72.			-64.
COMBINED	U	225.	76.	101.	73.			119.
AXIAL	L	16.	112.	-88.	-128.			-22.
HOOP	L	-56.	-96.	104.	-56.			-26.
COMBINED	L	58.	148.	137.	140.			121.

COMMENTS NO WEIGHT ON SEAL
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 702 SCAN 2. PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.2 K. TIME 310 12/54/09

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		22.				23.	21.	22.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		1.13	1.04	.97	.98	1.06	1.35	1.09
STRAIN UM/M								
AXIAL	U	194.	40.	72.	24.			80.
HOOP	U	-273.	-497.	-593.	-457.			-455.
COMBINED	U	329.	499.	598.	458.			471.
AXIAL	L	-273.	-40.	-241.	-385.			-235.
HOOP	L	-417.	-521.	-329.	-441.			-427.
COMBINED	L	498.	523.	407.	585.			504.

COMMENTS

ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 702 SCAN 3. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.9 K. TIME 310 12/57/51

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		39.				38.	39.	39.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		2.01	1.97	1.94	2.01	2.10	2.28	2.05
STRAIN UM/M								
AXIAL	U	176.	64.	112.	24.			94.
HOOP	U	-505.	-746.	-922.	-786.			-740.
COMBINED	U	535.	749.	929.	786.			750.
AXIAL	L	-393.	-152.	-353.	-489.			-347.
HOOP	L	-690.	-810.	-634.	-730.			-716.
COMBINED	L	794.	824.	725.	879.			805.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 702 SCAN 4. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.5 K. TIME 310 13/01/14

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		56.				56.	57.	56.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		3.00	3.05	3.11	3.24	3.35	3.18	3.16
STRAIN UM/M AXIAL	U	176.	72.	160.	96.			126.
HOOP	U	-754.	-1035.	-1323.	-1219.			-1083.
COMBINED	U	774.	1037.	1333.	1223.			1092.
AXIAL	L	-521.	-273.	-465.	-634.			-473.
HOOP	L	-986.	-1107.	-978.	-1075.			-1037.
COMBINED	L	1116.	1140.	1083.	1248.			1147.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 702 SCAN 5. PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.2 K. TIME 310 13/05/13

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		73.				74.	74.	74.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		3.89	4.00	4.09	4.29	4.41	4.07	4.13
STRAIN UM/M								
AXIAL	U	176.	72.	201.	144.			148.
HOOP	U	-1051.	-1283.	-1684.	-1540.			-1389.
COMBINED	U	1065.	1285.	1696.	1547.			1398.
AXIAL	L	-658.	-393.	-585.	-754.			-597.
HOOP	L	-1275.	-1412.	-1299.	-1379.			-1341.
COMBINED	L	1435.	1465.	1425.	1572.			1474.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 702 SCAN 6. PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.2 K. TIME 310 13/08/48

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		91.				91.	91.	91.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		4.77	4.85	4.93	5.14	5.26	4.94	4.98
STRAIN UM/M								
AXIAL	U	192.	96.	225.	168.			170.
HOOP	U	-1331.	-1532.	-1981.	-1740.			-1646.
COMBINED	U	1345.	1535.	1994.	1748.			1656.
AXIAL	L	-762.	-497.	-706.	-850.			-704.
HOOP	L	-1548.	-1684.	-1580.	-1628.			-1610.
COMBINED	L	1725.	1756.	1730.	1837.			1762.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 702 SCAN 7. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.9 K. TIME 310 13/13/45

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		111.				106.	112.	110.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		5.46	5.57	5.71	5.95	6.07	5.57	5.72
STRAIN UM/M								
AXIAL	U	201.	128.	257.	233.			205.
HOOP	U	-1580.	-1796.	-2214.	-2045.			-1909.
COMBINED	U	1593.	1801.	2228.	2058.			1920.
AXIAL	L	-842.	-577.	-794.	-938.			-788.
HOOP	L	-1780.	-1917.	-1796.	-1853.			-1837.
COMBINED	L	1970.	2002.	1964.	2077.			2003.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 702 SCAN 8. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.9 K. TIME 310 13/17/37

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		114.				112.	114.	113.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		5.57	5.74	5.92	6.21	6.34	5.63	5.90
STRAIN UM/M								
AXIAL	U	217.	136.	265.	241.			215.
HOOP	U	-1644.	-1885.	-2254.	-2125.			-1977.
COMBINED	U	1658.	1890.	2269.	2139.			1989.
AXIAL	L	-850.	-577.	-810.	-954.			-798.
HOOP	L	-1813.	-1965.	-1853.	-1925.			-1889.
COMBINED	L	2002.	2048.	2022.	2148.			2055.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 702 SCAN 9. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.9 K. TIME 310 13/21/11

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		119.				119.	122.	120.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		5.64	5.87	6.11	6.45	6.57	5.68	6.05
STRAIN UM/M								
AXIAL	U	225.	152.	273.	249.			225.
HOOP	U	-1692.	-1957.	-2270.	-2181.			-2025.
COMBINED	U	1707.	1963.	2286.	2196.			2038.
AXIAL	L	-858.	-602.	-818.	-978.			-814.
HOOP	L	-1869.	-2005.	-1877.	-1957.			-1927.
COMBINED	L	2056.	2093.	2047.	2188.			2096.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 702 SCAN 10. PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.2 K. TIME 310 13/29/05

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		125.				125.	125.	125.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		5.65	5.90	6.14	6.47	6.59	5.69	6.07
STRAIN UM/M								
AXIAL	U	233.	160.	265.	249.			227.
HOOP	U	-1700.	-1973.	-2278.	-2189.			-2035.
COMBINED	U	1716.	1979.	2293.	2204.			2048.
AXIAL	L	-850.	-602.	-826.	-962.			-810.
HOOP	L	-1861.	-2021.	-1893.	-1957.			-1933.
COMBINED	L	2046.	2109.	2065.	2181.			2100.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 702 SCAN 11. PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.2 K. TIME 310 13/32/07

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		129.				130.	130.	129.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		5.66	5.91	6.14	6.48	6.60	5.69	6.08
STRAIN UM/M								
AXIAL	U	233.	152.	265.	241.			223.
HOOP	U	-1700.	-1981.	-2270.	-2189.			-2035.
COMBINED	U	1716.	1987.	2285.	2203.			2048.
AXIAL	L	-842.	-593.	-818.	-970.			-806.
HOOP	L	-1861.	-2013.	-1893.	-1973.			-1935.
COMBINED	L	2042.	2099.	2062.	2199.			2100.

COMMENTS LEAK RATE 6X10E-5 ATM CC/S
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 702 SCAN 12. PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.2 K. TIME 310 14/23/54

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		108.				103.	104.	105.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		5.64	5.91	6.15	6.28	6.57	5.66	6.03
STRAIN UM/M								
AXIAL	U	241.	136.	257.	225.			215.
HOOP	U	-1708.	-1957.	-2254.	-2189.			-2027.
COMBINED	U	1725.	1962.	2268.	2201.			2039.
AXIAL	L	-842.	-593.	-826.	-978.			-810.
HOOP	L	-1869.	-2005.	-1869.	-1973.			-1929.
COMBINED	L	2050.	2091.	2043.	2202.			2096.

COMMENTS PROCEEDING DOWNWARD
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 702 SCAN 13. PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.2 K. TIME 310 14/27/16

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		93.				91.	94.	93.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		5.62	5.90	6.15	6.47	6.55	5.63	6.05
STRAIN UM/M								
AXIAL	U	241.	128.	249.	217.			209.
HOOP	U	-1700.	-1941.	-2238.	-2189.			-2017.
COMBINED	U	1717.	1945.	2251.	2200.			2028.
AXIAL	L	-834.	-585.	-826.	-978.			-806.
HOOP	L	-1861.	-1989.	-1853.	-1949.			-1913.
COMBINED	L	2039.	2073.	2028.	2181.			2080.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 702 SCAN 14. PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.2 K. TIME 310 14/29/58

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		80.				80.	80.	80.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		5.57	5.86	6.13	6.46	6.54	5.60	6.02
STRAIN UM/M								
AXIAL	U	241.	120.	225.	201.			196.
HOOP	U	-1684.	-1949.	-2214.	-2165.			-2003.
COMBINED	U	1701.	1953.	2225.	2175.			2013.
AXIAL	L	-834.	-561.	-834.	-970.			-800.
HOOP	L	-1861.	-1973.	-1829.	-1957.			-1905.
COMBINED	L	2039.	2051.	2010.	2184.			2071.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 702 SCAN 15. PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.5 K. TIME 310 14/33/51

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		70.				71.	71.	71.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		5.37	5.76	6.04	6.35	6.40	5.41	5.89
STRAIN UM/M								
AXIAL	U	257.	136.	225.	152.			192.
HOOP	U	-1660.	-1909.	-2157.	-2029.			-1939.
COMBINED	U	1680.	1914.	2169.	2035.			1949.
AXIAL	L	-802.	-553.	-794.	-954.			-776.
HOOP	L	-1813.	-1925.	-1780.	-1885.			-1851.
COMBINED	L	1982.	2003.	1949.	2113.			2012.

COMMENTS SEAL STARTING TO LOOSEN
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 702 SCAN 16. PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.5 K. TIME 310 14/37/10

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		63.				65.	66.	65.
DIAMETER								
MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE								
MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		5.12	5.42	5.71	6.02	6.08	5.11	5.58
STRAIN UM/M								
AXIAL	U	281.	152.	217.	144.			198.
HOOP	U	-1652.	-1861.	-2045.	-1869.			-1857.
COMBINED	U	1676.	1867.	2057.	1874.			1868.
AXIAL	L	-762.	-505.	-762.	-906.			-734.
HOOP	L	-1724.	-1837.	-1660.	-1764.			-1746.
COMBINED	L	1885.	1905.	1827.	1984.			1900.

COMMENTS

ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 702 SCAN 17. PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.2 K. TIME 310 14/40/16

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		61.				62.	62.	62.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		4.82	5.13	5.48	5.86	5.97	5.00	5.38
STRAIN UM/M								
AXIAL	U	289.	144.	225.	144.			201.
HOOP	U	-1628.	-1829.	-1997.	-1845.			-1825.
COMBINED	U	1653.	1834.	2010.	1850.			1837.
AXIAL	L	-738.	-473.	-738.	-890.			-710.
HOOP	L	-1668.	-1780.	-1604.	-1716.			-1692.
COMBINED	L	1824.	1842.	1766.	1933.			1841.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 702 SCAN 18. PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.2 K. TIME 310 14/43/40

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		50.				50.	51.	50.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		3.70	4.08	4.51	4.91	5.10	4.01	4.39
STRAIN UM/M								
AXIAL	U	305.	160.	209.	128.			201.
HOOP	U	-1428.	-1612.	-1724.	-1532.			-1574.
COMBINED	U	1460.	1620.	1737.	1537.			1588.
AXIAL	L	-626.	-377.	-618.	-770.			-597.
HOOP	L	-1404.	-1492.	-1299.	-1395.			-1397.
COMBINED	L	1537.	1539.	1439.	1594.			1527.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 702 SCAN 19. PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.2 K. TIME 310 14/47/43

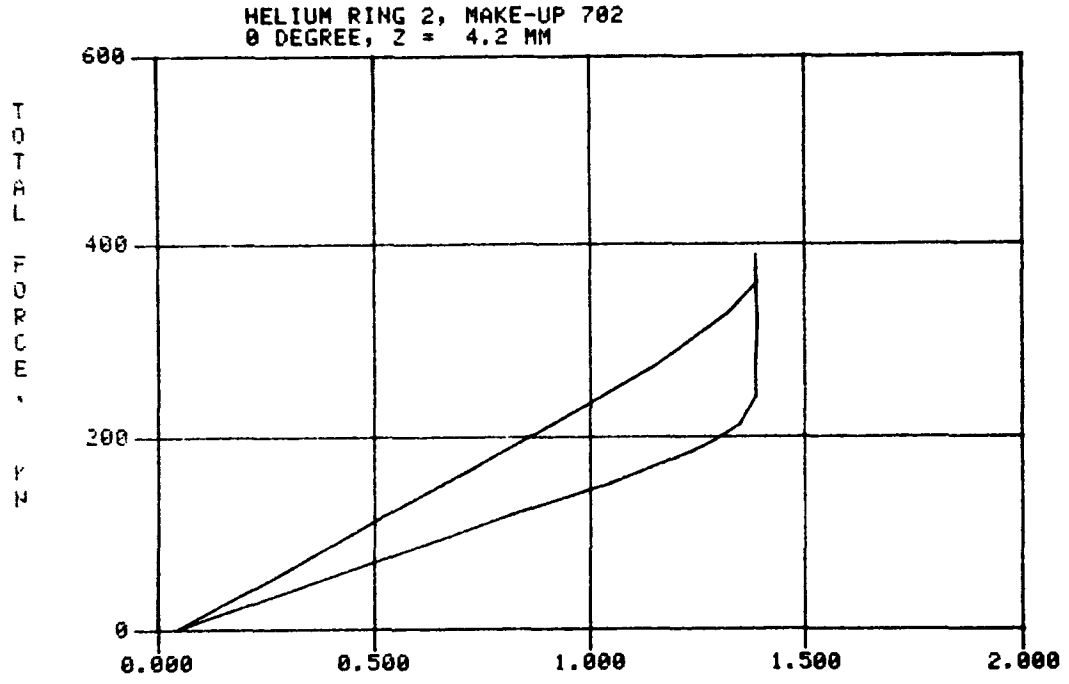
ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		40.				41.	38.	40.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		2.46	2.94	3.93	4.09	4.31	2.91	3.44
STRAIN UM/M								
AXIAL	U	281.	112.	217.	128.			184.
HOOP	U	-1091.	-1267.	-1428.	-1259.			-1261.
COMBINED	U	1126.	1272.	1444.	1266.			1277.
AXIAL	L	-489.	-249.	-497.	-642.			-469.
HOOP	L	-1091.	-1179.	-994.	-1099.			-1091.
COMBINED	L	1195.	1205.	1112.	1272.			1196.

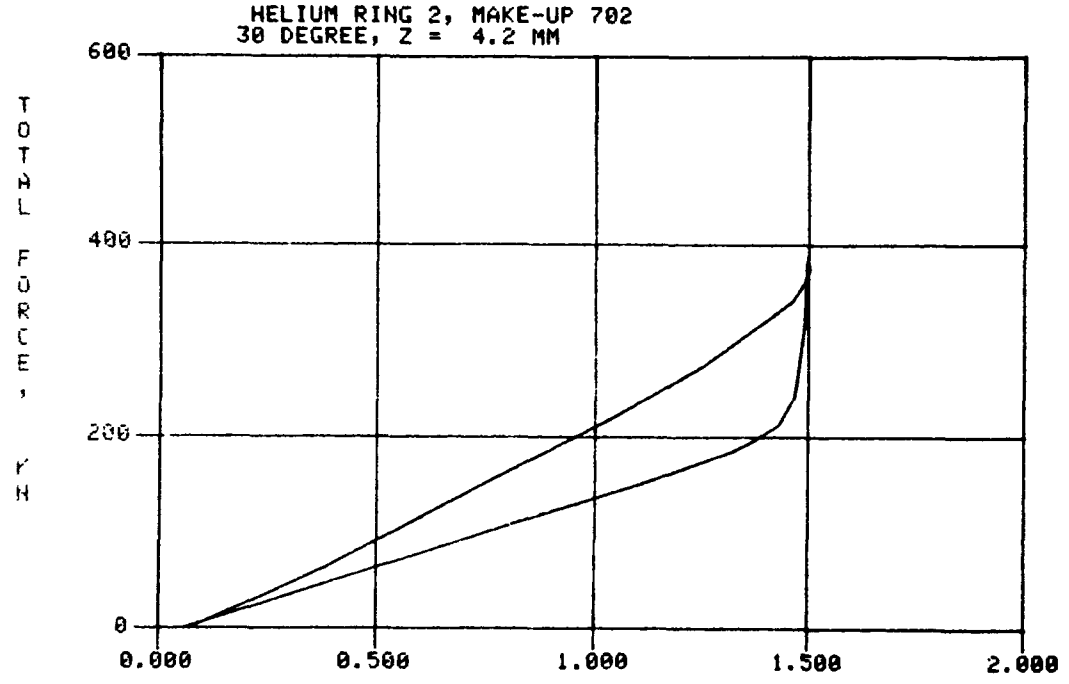
COMMENTS
ALL DATA CORRECTED TO 294.5 K.

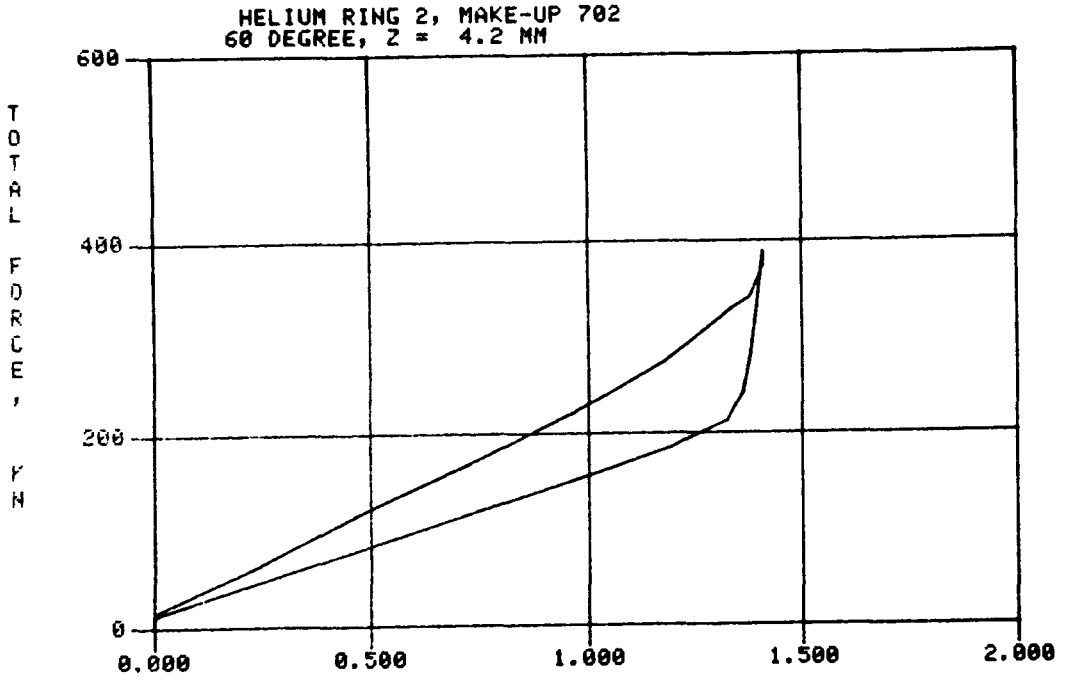
TABLE . DATA FROM TEST 702 SCAN 20. PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.5 K. TIME 310 14/51/02

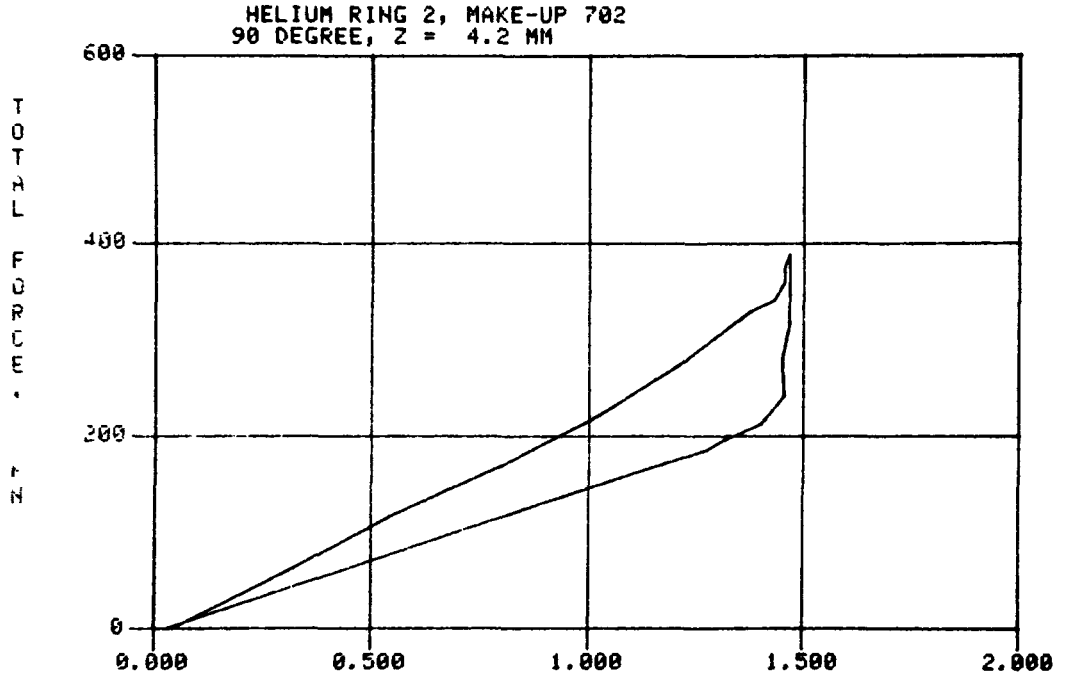
ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		-0.				-0.	-0.	-0.
DIAMETER								
MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE								
MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		0.00	0.00	0.00	0.00	0.00	0.00	0.00
STRAIN UM/M								
AXIAL	U	257.	32.	32.	16.			84.
HOOP	U	-16.	-80.	-104.	-64.			-66.
COMBINED	U	257.	86.	109.	66.			130.
AXIAL	L	24.	136.	-96.	-128.			-16.
HOOP	L	-56.	-80.	120.	-40.			-14.
COMBINED	L	61.	158.	154.	134.			127.

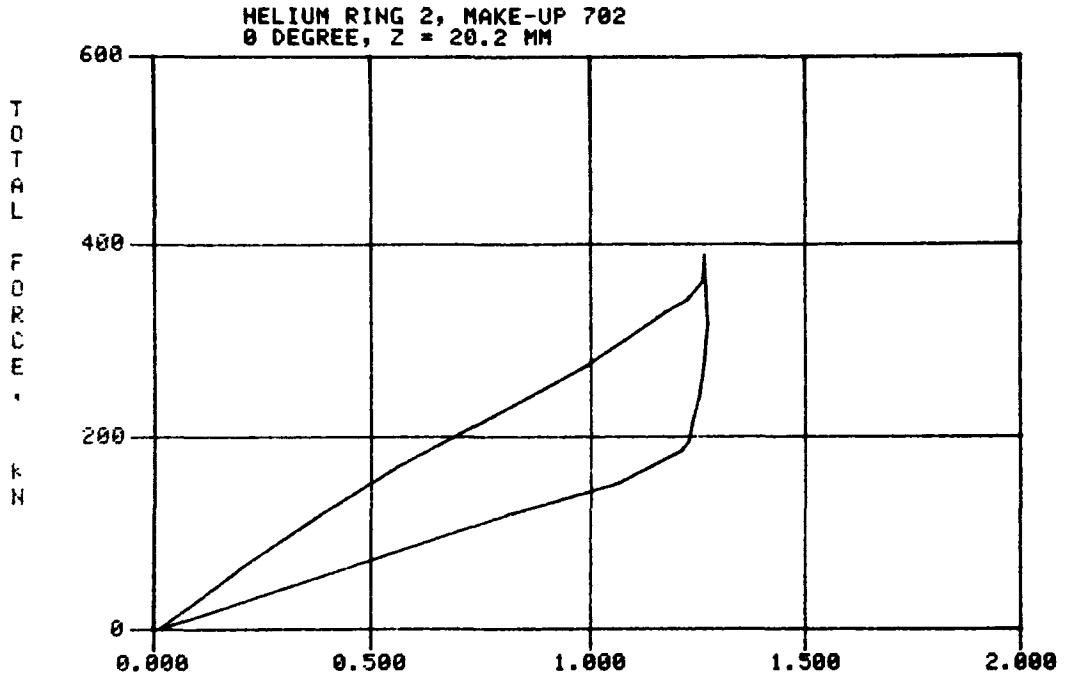
COMMENTS NO WEIGHT ON SEAL
ALL DATA CORRECTED TO 294.5 K.

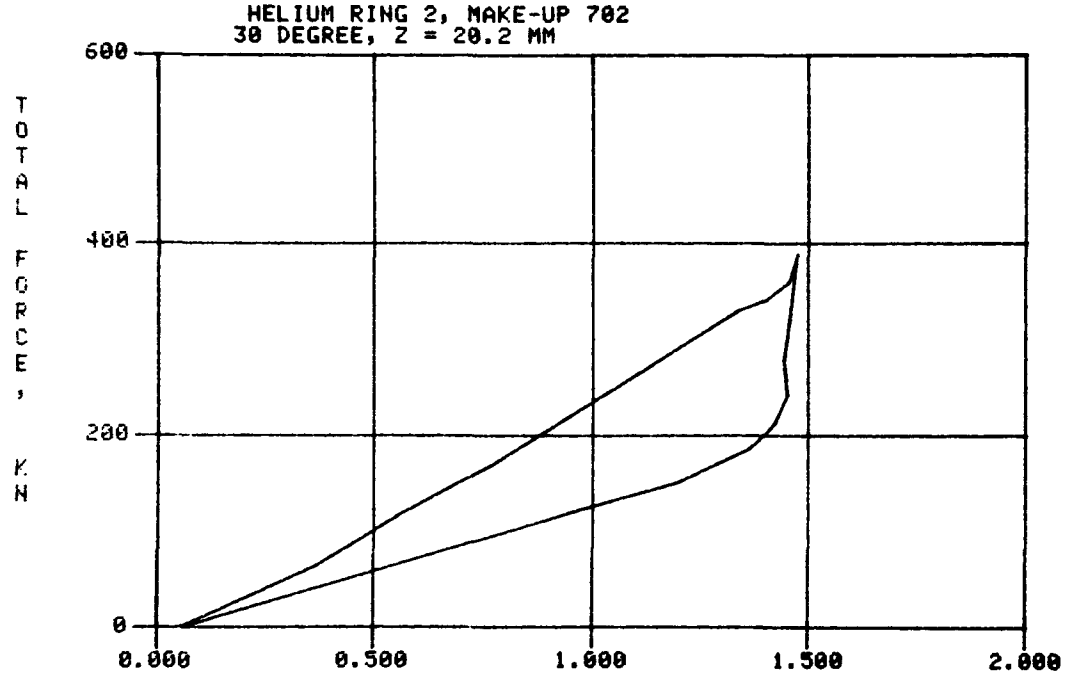

HELIUM RING 2, MAKE-UP 702
0 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN

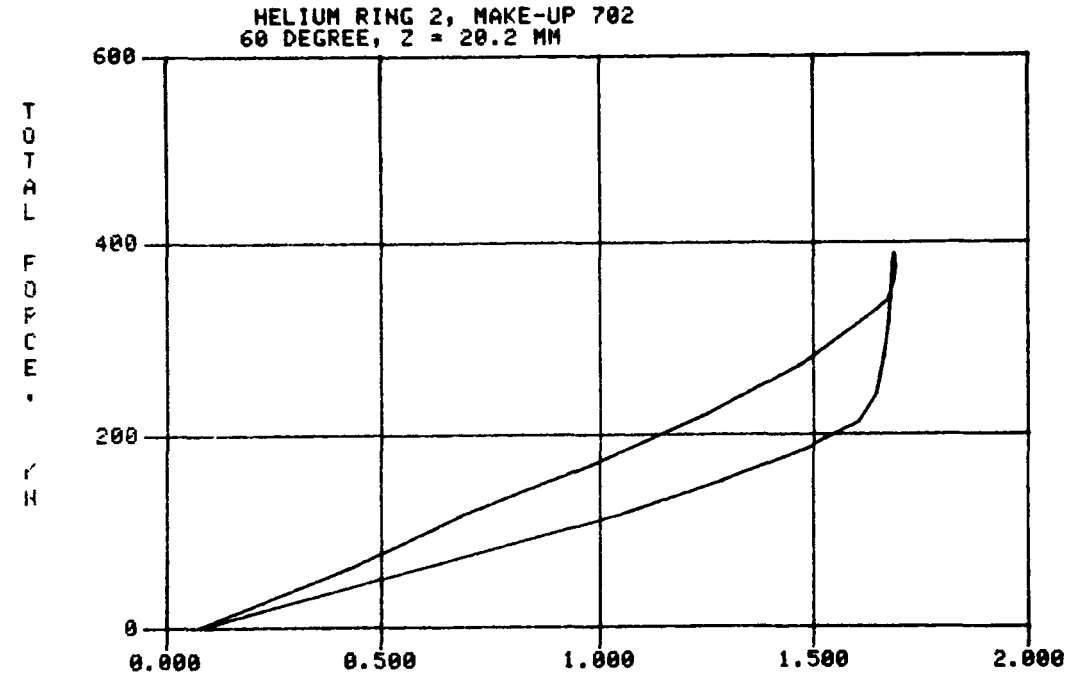

HELIUM RING 2, MAKE-UP 702
30 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN

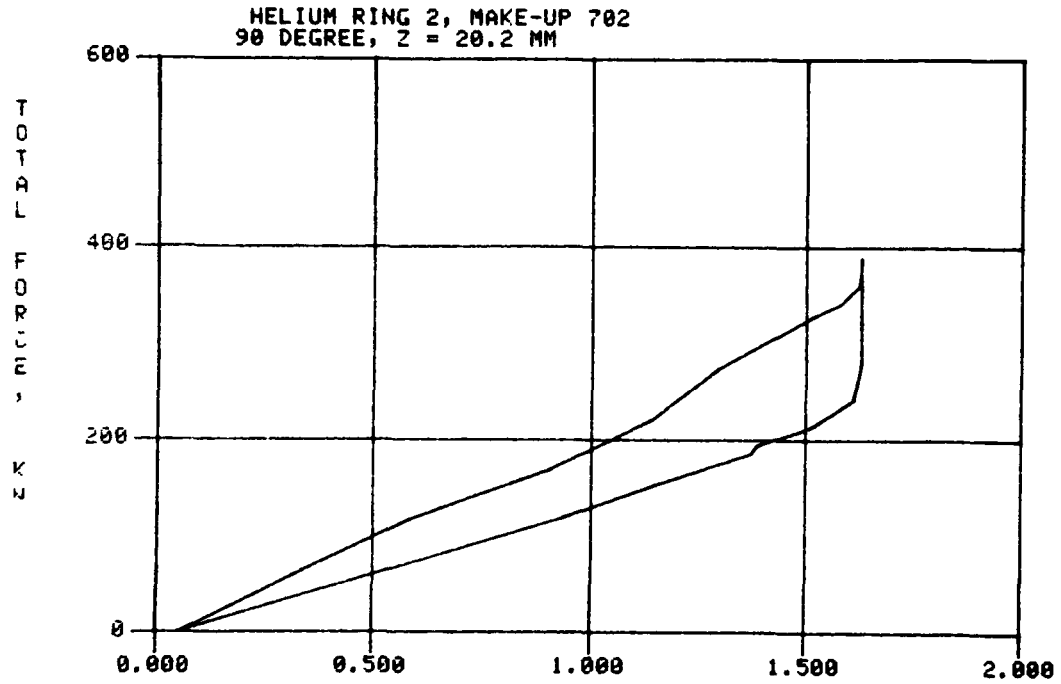

HELIUM RING 2, MAKE-UP 702
60 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN

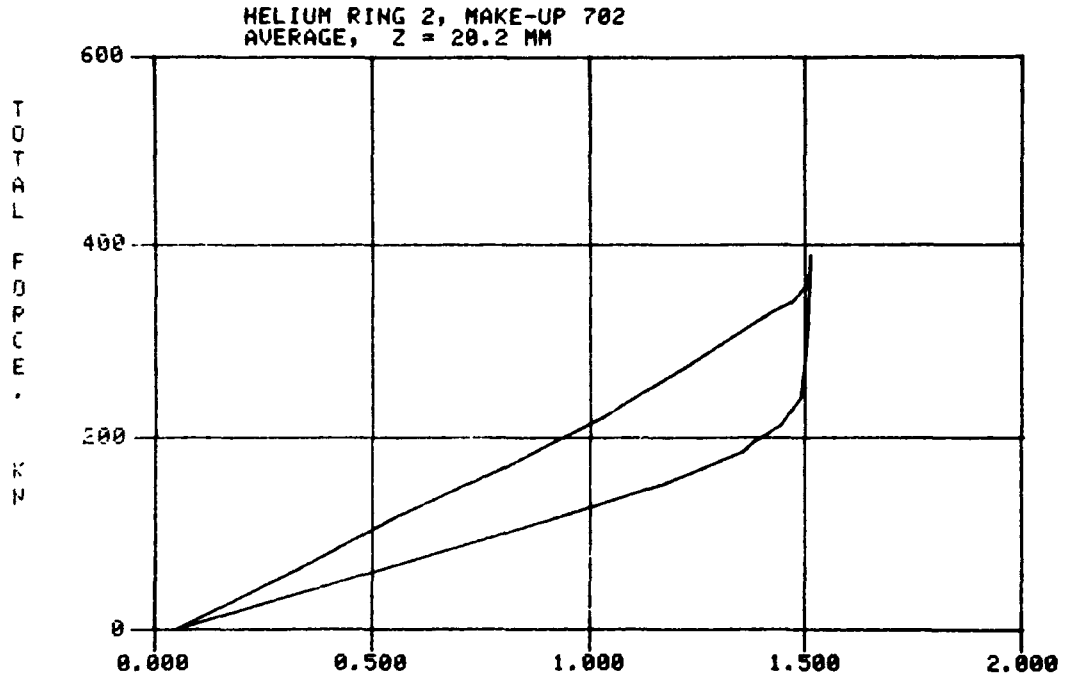

HELIUM RING 2, MAKE-UP 702
90 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN

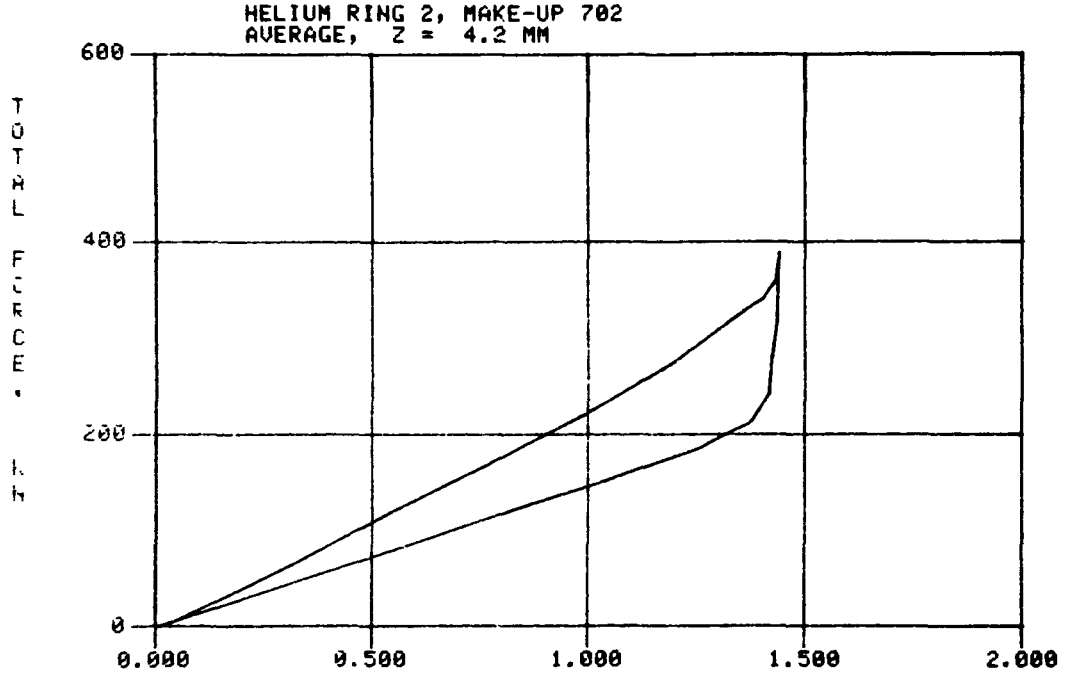

HELIUM RING 2, MAKE-UP 702
0 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


HELIUM RING 2, MAKE-UP 702
30 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


HELIUM RING 2, MAKE-UP 702
60 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


HELIUM RING 2, MAKE-UP 702
90 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


HELIUM RING 2, MAKE-UP 702
AVERAGE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


HELIUM RING 2, MAKE-UP 702
AVERAGE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN

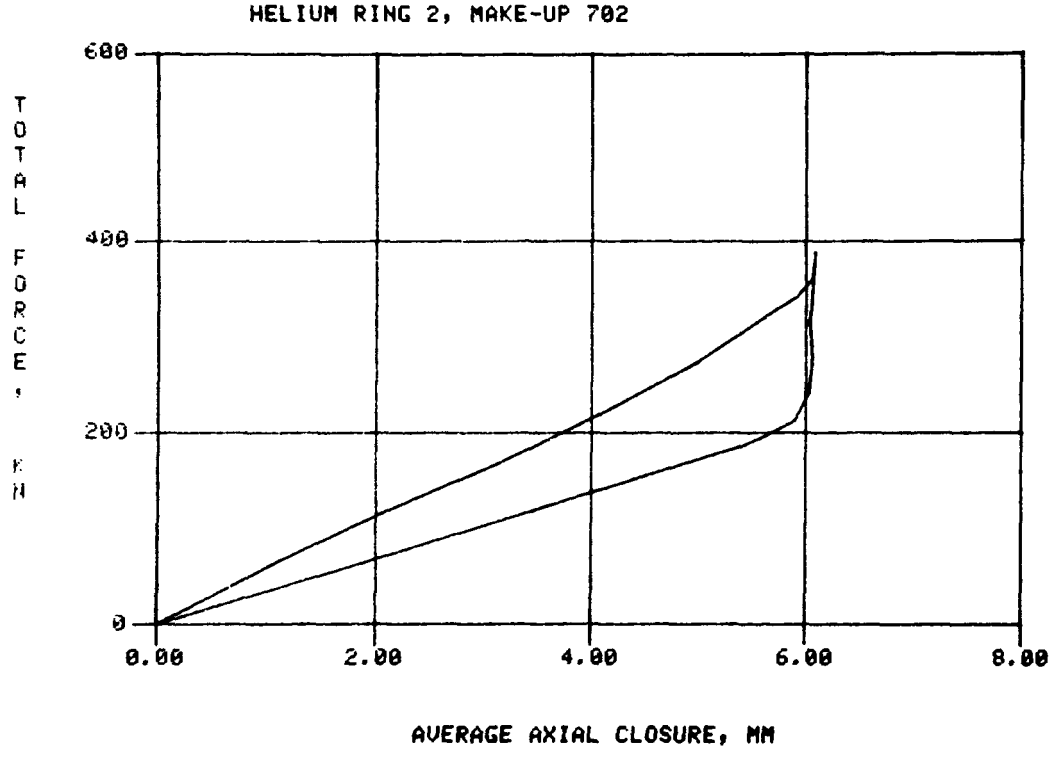

HELIUM RING 2, MAKE-UP 702
TOTAL FORCE, KN
600
400
200
0
0.00
2.00
4.00
6.00
8.00
AVERAGE AXIAL CLOSURE, MM

TABLE . DATA FROM TEST 703 SCAN 1. PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.5 K. TIME 311 09/15/32

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		-0.				-0.	-0.	-0.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		0.00	0.00	0.00	0.00	0.00	0.00	0.00
STRAIN UM/M								
AXIAL	U	257.	32.	32.	16.			84.
HOOP	U	-16.	-80.	-104.	-64.			-66.
COMBINED	U	257.	86.	109.	66.			130.
AXIAL	L	24.	136.	-96.	-128.			-16.
HOOP	L	-56.	-80.	120.	-40.			-14.
COMBINED	L	61.	158.	154.	134.			127.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 703 SCAN 2. PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.5 K. TIME 311 09/27/38

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		25.				26.	25.	25.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		.91	.96	1.14	1.42	1.65	1.58	1.28
STRAIN UM/M								
AXIAL	U	241.	96.	104.	32.			118.
HOOP	U	-409.	-634.	-642.	-489.			-543.
COMBINED	U	475.	641.	650.	490.			564.
AXIAL	L	-265.	-16.	-265.	-385.			-233.
HOOP	L	-473.	-569.	-369.	-465.			-469.
COMBINED	L	542.	570.	454.	604.			542.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 703 SCAN 3. PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.5 K. TIME 311 09/31/21

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		48.				48.	47.	48.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		2.21	2.32	2.53	2.82	3.05	2.80	2.62
STRAIN UM/M								
AXIAL	U	257.	136.	104.	32.			132.
HOOP	U	-754.	-1067.	-978.	-754.			-888.
COMBINED	U	796.	1075.	984.	755.			903.
AXIAL	L	-441.	-152.	-417.	-658.			-417.
HOOP	L	-858.	-986.	-730.	-850.			-856.
COMBINED	L	965.	998.	841.	1075.			970.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 703 SCAN 4. PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.5 K. TIME 311 09/36/11

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		69.				70.	69.	69.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		3.51	3.65	3.85	4.16	4.36	3.92	3.91
STRAIN UM/M								
AXIAL	U	265.	112.	104.	48.			132.
HOOP	U	-1211.	-1323.	-1299.	-1091.			-1231.
COMBINED	U	1240.	1328.	1303.	1092.			1241.
AXIAL	L	-618.	-305.	-577.	-810.			-577.
HOOP	L	-1259.	-1347.	-1099.	-1203.			-1227.
COMBINED	L	1402.	1381.	1241.	1450.			1369.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 703 SCAN 5. PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.5 K. TIME 311 09/41/00

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		91.				91.	91.	91.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		4.97	4.97	5.06	5.28	5.38	4.98	5.09
STRAIN UM/M								
AXIAL	U	273.	89.	120.	48.			132.
HOOP	U	-1548.	-1532.	-1596.	-1492.			-1542.
COMBINED	U	1572.	1534.	1601.	1492.			1550.
AXIAL	L	-746.	-441.	-714.	-954.			-714.
HOOP	L	-1604.	-1676.	-1436.	-1556.			-1568.
COMBINED	L	1769.	1733.	1603.	1825.			1733.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 703 SCAN 6. PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.5 K. TIME 311 09/46/50

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		108.				113.	108.	110.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		6.06	6.05	5.88	5.84	5.77	5.65	5.87
STRAIN UM/M								
AXIAL	U	249.	80.	136.	80.			136.
HOOP	U	-1668.	-1684.	-1764.	-1724.			-1710.
COMBINED	U	1687.	1686.	1770.	1726.			1717.
AXIAL	L	-842.	-529.	-794.	-1027.			-798.
HOOP	L	-1821.	-1901.	-1660.	-1772.			-1788.
COMBINED	L	2006.	1973.	1840.	2048.			1967.

COMMENTS

ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 703 SCAN 7. PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.5 K. TIME 311 09/50/57

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		113.				117.	113.	114.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		6.32	6.24	5.99	5.88	5.78	5.79	6.00
STRAIN UM/M								
AXIAL	U	241.	80.	136.	80.			134.
HOOP	U	-1684.	-1708.	-1796.	-1748.			-1734.
COMBINED	U	1701.	1710.	1802.	1750.			1741.
AXIAL	L	-874.	-545.	-810.	-1035.			-816.
HOOP	L	-1861.	-1949.	-1732.	-1796.			-1835.
COMBINED	L	2056.	2024.	1912.	2073.			2016.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 703 SCAN 8. PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.5 K. TIME 311 09/54/17

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		117.				121.	119.	119.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		6.43	6.34	6.05	5.90	5.79	5.83	6.06
STRAIN UM/M								
AXIAL	U	233.	80.	128.	88.			132.
HOOP	U	-1684.	-1708.	-1821.	-1756.			-1742.
COMBINED	U	1700.	1710.	1825.	1759.			1748.
AXIAL	L	-846.	-545.	-826.	-1027.			-816.
HOOP	L	-1869.	-1957.	-1716.	-1805.			-1837.
COMBINED	L	2060.	2031.	1905.	2076.			2018.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 703 SCAN 9. PRESSURE .0 KPA
AVERAGE TEMPERATURE 294.5 K. TIME 311 09/57/21

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		125.				124.	124.	124.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		6.48	6.38	6.07	5.91	5.79	5.85	6.08
STRAIN UM/M								
AXIAL	U	265.	80.	128.	88.			140.
HOOP	U	-1708.	-1724.	-1821.	-1756.			-1752.
COMBINED	U	1729.	1726.	1825.	1759.			1760.
AXIAL	L	-810.	-529.	-818.	-1011.			-792.
HOOP	L	-1893.	-1973.	-1700.	-1829.			-1849.
COMBINED	L	2059.	2043.	1887.	2089.			2019.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 703 SCAN 10. PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.5 K. TIME 311 10/00/10

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		131.				129.	127.	129.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		6.51	6.40	6.07	5.92	5.80	5.87	6.09
STRAIN UM/M								
AXIAL	U	281.	80.	128.	96.			146.
HOOP	U	-1732.	-1740.	-1829.	-1764.			-1766.
COMBINED	U	1755.	1742.	1833.	1767.			1774.
AXIAL	L	-754.	-529.	-818.	-1003.			-776.
HOOP	L	-1909.	-1981.	-1708.	-1829.			-1857.
COMBINED	L	2052.	2050.	1894.	2095.			2021.

COMMENTS LEAK RATE 1.4X10E-4 ATM CC/S AT 20 PSIG
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 703 SCAN 11. PRESSURE .0 PA
AVERAGE TEMPERATURE 296.5 K. TIME 312 08/46/15

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		96.				104.	102.	101.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		6.45	6.37	6.07	5.91	5.76	5.83	6.07
STRAIN UM/M								
AXIAL	U	265.	88.	104.	64.			130.
HOOP	U	-1732.	-1780.	-1829.	-1756.			-1774.
COMBINED	U	1752.	1783.	1832.	1758.			1781.
AXIAL	L	-842.	-561.	-818.	-930.			-788.
HOOP	L	-1885.	-1989.	-1091.	-1821.			-1696.
COMBINED	L	2064.	2067.	1363.	2044.			1885.

COMMENTS PROCEEDING DOWNWARD
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 703 SCAN 12. PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.5 K. TIME 312 08/49/54

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		81.				77.	80.	79.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		6.42	6.36	6.06	5.87	5.69	5.79	6.03
STRAIN UM/M								
AXIAL	U	241.	80.	96.	56.			118.
HOOP	U	-1724.	-1764.	-1813.	-1756.			-1764.
COMBINED	U	1741.	1766.	1815.	1757.			1770.
AXIAL	L	-850.	-545.	-794.	-962.			-788.
HOOP	L	-1877.	-1965.	-1043.	-1813.			-1674.
COMBINED	L	2060.	2039.	1311.	2052.			1866.

COMMENTS

ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 703 SCAN 13. PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.5 K. TIME 312 08/54/15

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		74.				72.	74.	73.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		6.37	6.32	6.05	5.86	5.68	5.75	6.01
STRAIN UM/M								
AXIAL	U	225.	80.	120.	56.			120.
HOOP	U	-1716.	-1788.	-1837.	-1772.			-1778.
COMBINED	U	1731.	1790.	1841.	1773.			1784.
AXIAL	L	-834.	-521.	-802.	-954.			-778.
HOOP	L	-1861.	-1957.	-1043.	-1813.			-1668.
COMBINED	L	2039.	2025.	1315.	2048.			1857.

COMMENTS SEAL STARTING TO RELEASE
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 703 SCAN 14. PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.9 K. TIME 312 08/57/10

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		66.				64.	67.	66.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		6.06	6.01	5.73	5.52	5.32	5.42	5.68
STRAIN UM/M								
AXIAL	U	265.	120.	144.	96.			156.
HOOP	U	-1692.	-1780.	-1885.	-1764.			-1780.
COMBINED	U	1713.	1784.	1890.	1767.			1789.
AXIAL	L	-778.	-489.	-770.	-914.			-738.
HOOP	L	-1748.	-1845.	-970.	-1756.			-1580.
COMBINED	L	1914.	1903.	1239.	1980.			1760.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 703 SCAN 15. PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.5 K. TIME 312 09/00/28

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		54.				54.	56.	55.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		5.11	5.02	4.77	4.60	4.45	4.65	4.77
STRAIN UM/M								
AXIAL	U	273.	144.	201.	136.			188.
HOOP	U	-1468.	-1628.	-1788.	-1620.			-1626.
COMBINED	U	1493.	1634.	1800.	1626.			1638.
AXIAL	L	-674.	-385.	-666.	-810.			-634.
HOOP	L	-1492.	-1596.	-738.	-1516.			-1335.
COMBINED	L	1637.	1642.	994.	1719.			1498.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 703 SCAN 16. PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.9 K. TIME 312 09/03/35

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		44.				42.	43.	43.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		4.02	3.98	3.81	3.70	3.61	3.73	3.81
STRAIN UM/M								
AXIAL	U	257.	128.	201.	128.			178.
HOOP	U	-1171.	-1323.	-1596.	-1363.			-1363.
COMBINED	U	1199.	1330.	1609.	1369.			1377.
AXIAL	L	-545.	-281.	-561.	-706.			-523.
HOOP	L	-1195.	-1299.	-770.	-1235.			-1125.
COMBINED	L	1314.	1329.	953.	1423.			1255.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 703 SCAN 17. PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.5 K. TIME 312 09/07/58

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		28.				29.	30.	29.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		2.29	2.67	2.54	2.39	2.18	2.39	2.41
STRAIN UM/M								
AXIAL	U	241.	80.	160.	88.			142.
HOOP	U	-762.	-906.	-1131.	-914.			-928.
COMBINED	U	799.	910.	1142.	919.			942.
AXIAL	L	-377.	-128.	-401.	-537.			-361.
HOOP	L	-786.	-882.	-337.	-818.			-706.
COMBINED	L	872.	891.	524.	979.			816.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 703 SCAN 18. PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.5 K. TIME 312 09/12/11

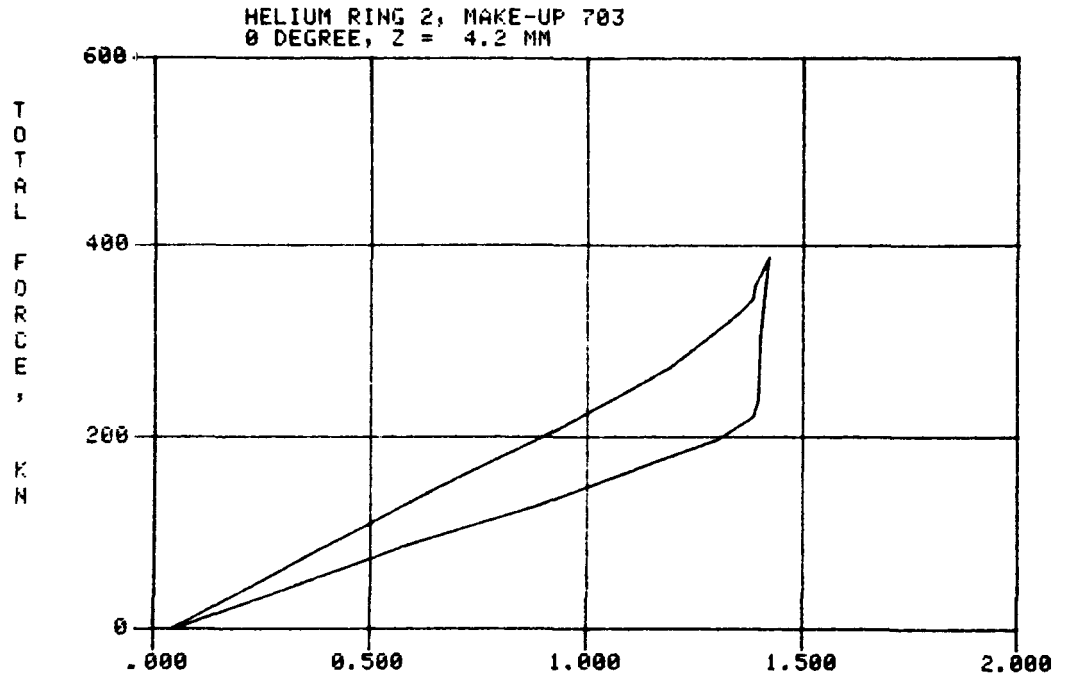
ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		16.				15.	15.	15.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		1.38	1.46	1.39	1.35	1.25	1.12	1.32
STRAIN UM/M								
AXIAL	U	241.	72.	112.	48.			118.
HOOP	U	-417.	-561.	-666.	-521.			-541.
COMBINED	U	481.	566.	675.	524.			562.
AXIAL	L	-217.	16.	-265.	-385.			-213.
HOOP	L	-441.	-529.	40.	-457.			-347.
COMBINED	L	491.	530.	268.	598.			472.

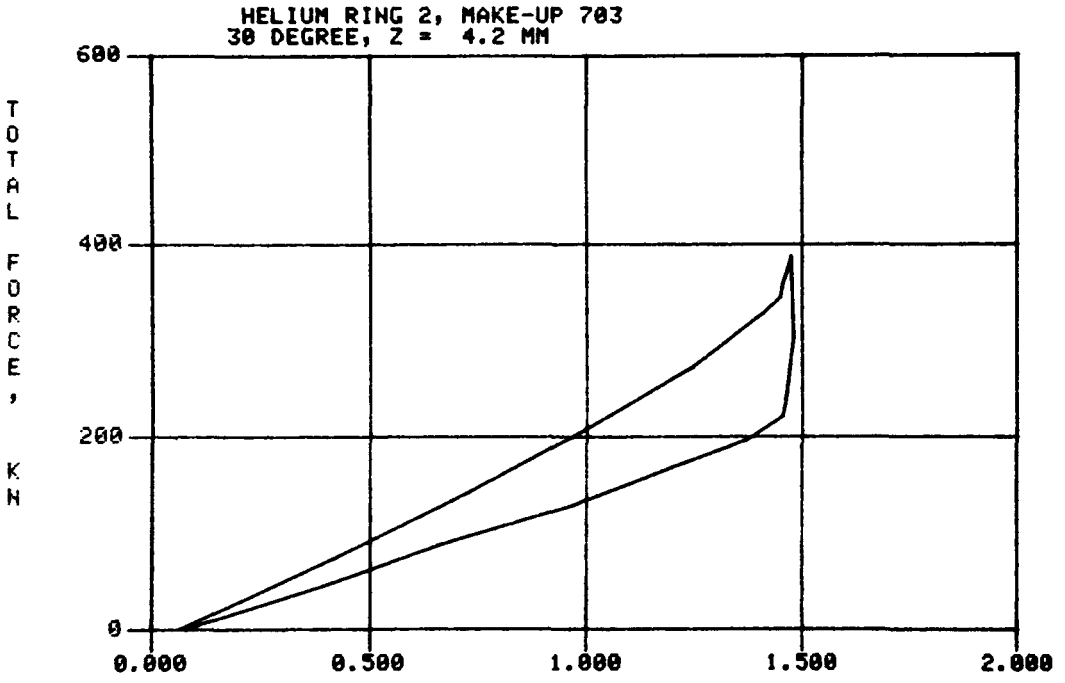
COMMENTS SEAL FREE
ALL DATA CORRECTED TO 294.5 K.

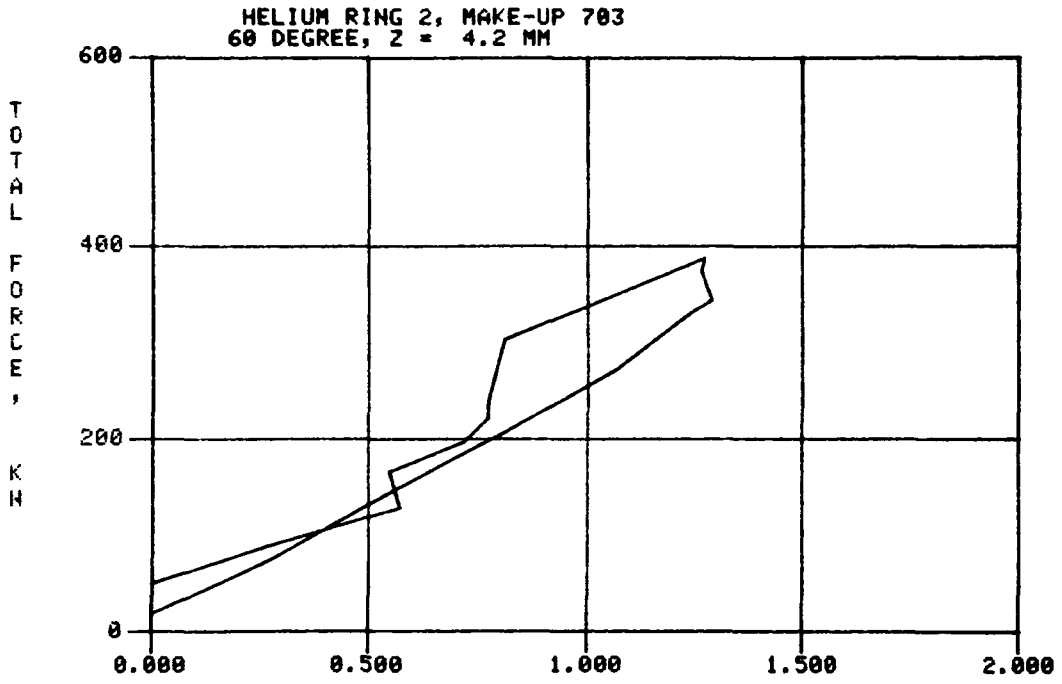
TABLE , DATA FROM TEST 703 SCAN 19. PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.5 K. TIME 312 09/22/23

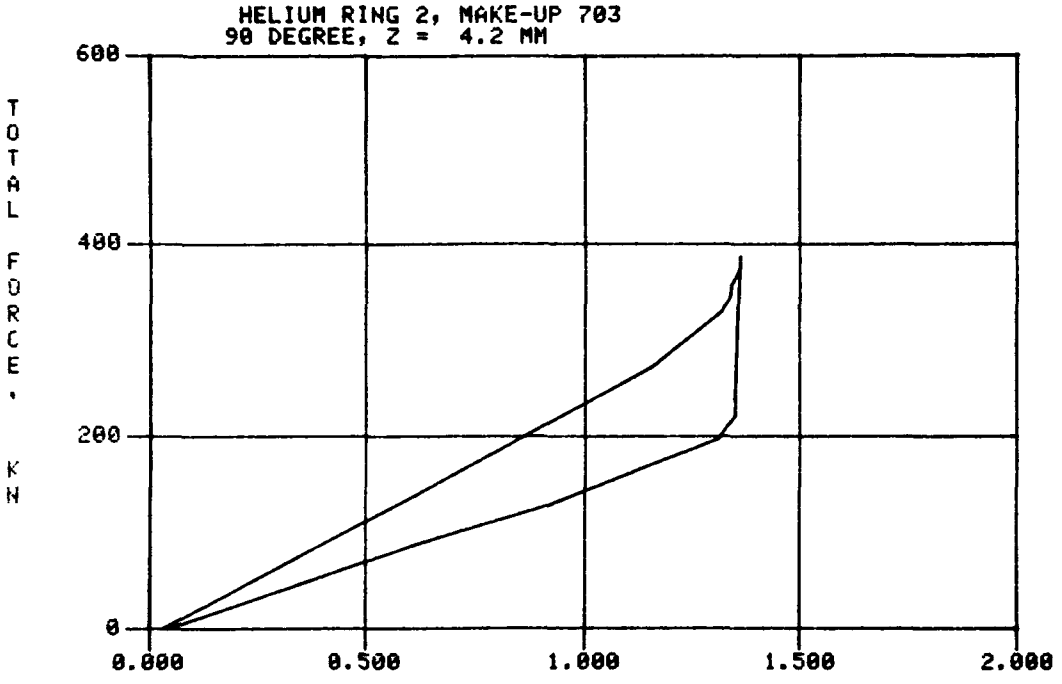
ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		-0.				-0.	-0.	-0.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		0.00	0.00	0.00	0.00	0.00	0.00	0.00
STRAIN UM/M								
AXIAL	U	273.	40.	40.	0.			88.
HOOP	U	-24.	-80.	-96.	-56.			-64.
COMBINED	U	274.	90.	104.	56.			131.
AXIAL	L	32.	168.	-104.	-144.			-12.
HOOP	L	-64.	-96.	505.	-56.			72.
COMBINED	L	72.	194.	516.	155.			234.

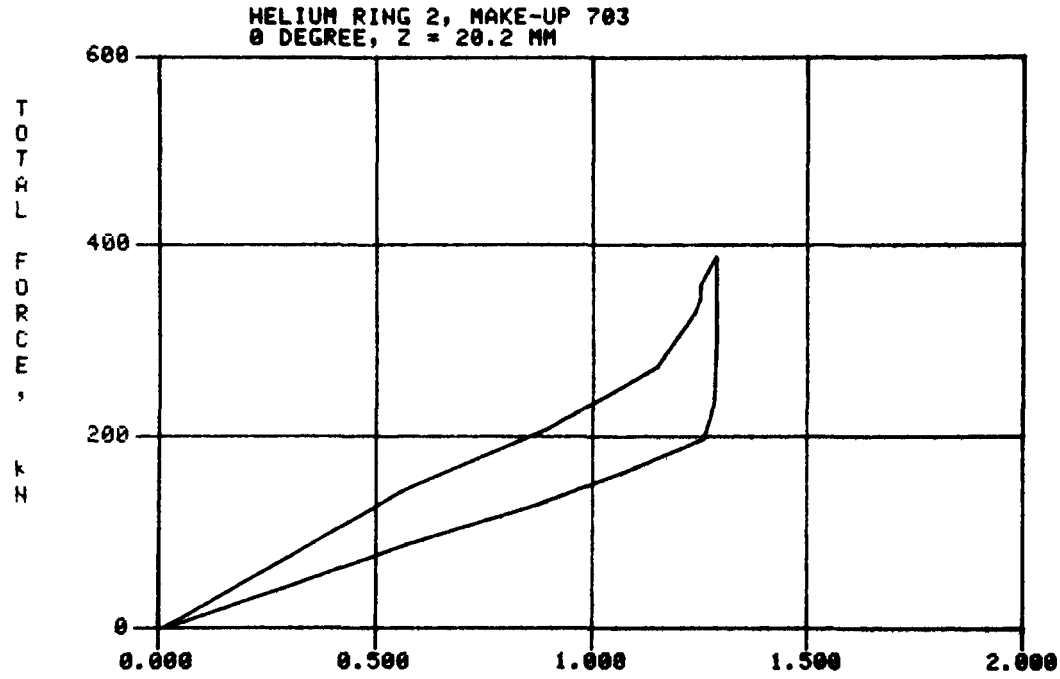
COMMENTS NO WEIGHT ON SEAL
ALL DATA CORRECTED TO 294.5 K.

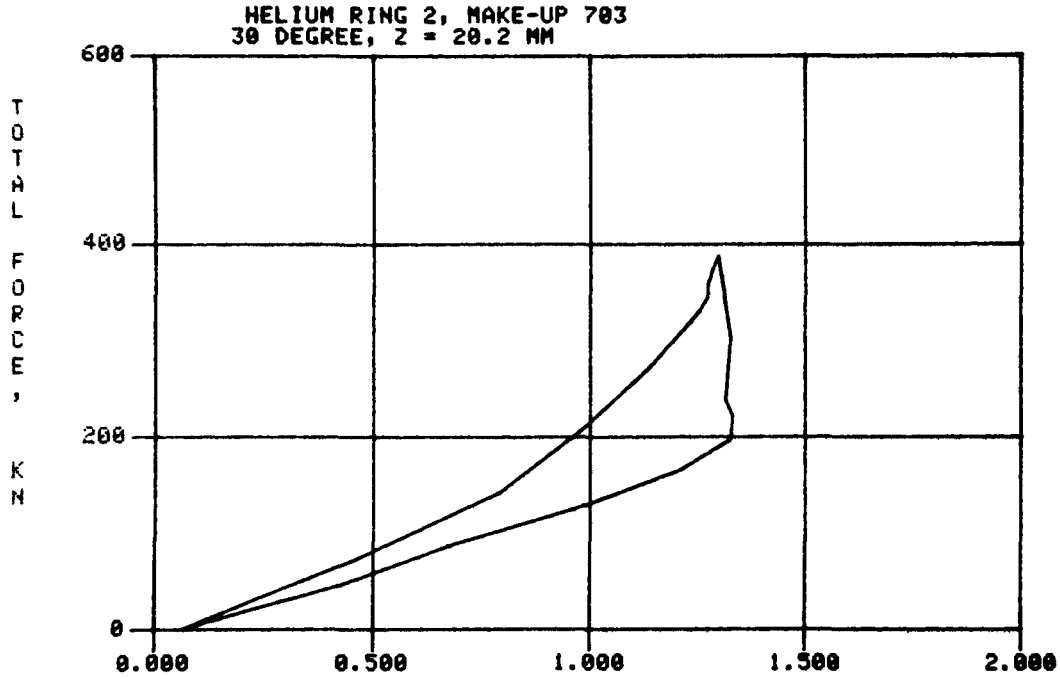

HELIUM RING 2, MAKE-UP 703
0 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN

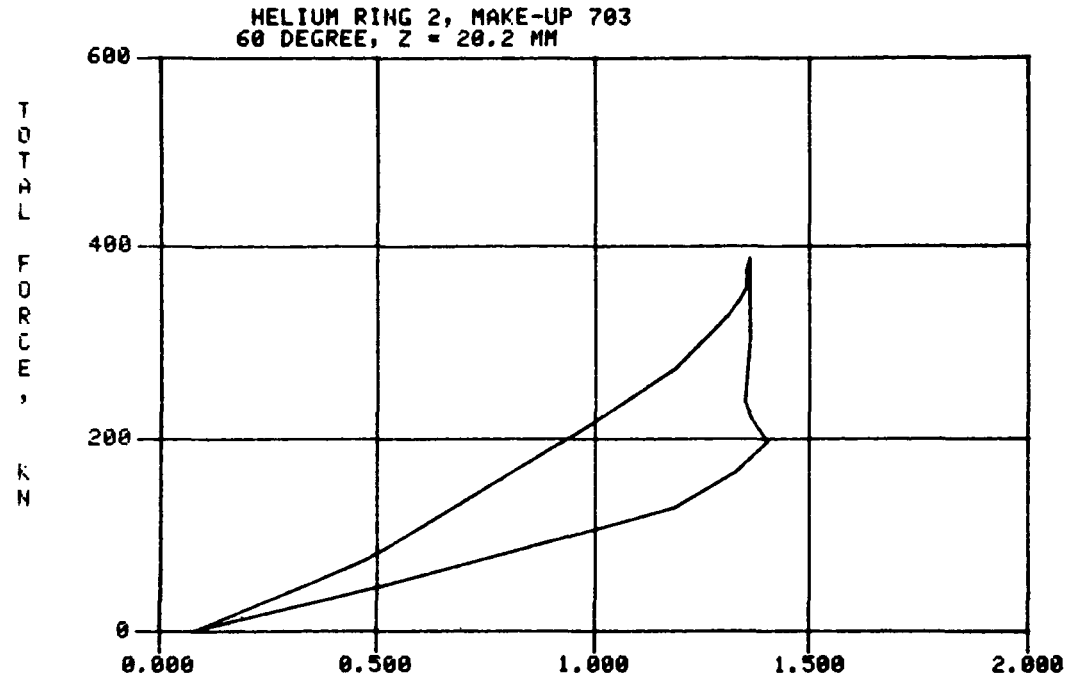

HELIUM RING 2, MAKE-UP 703
30 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN

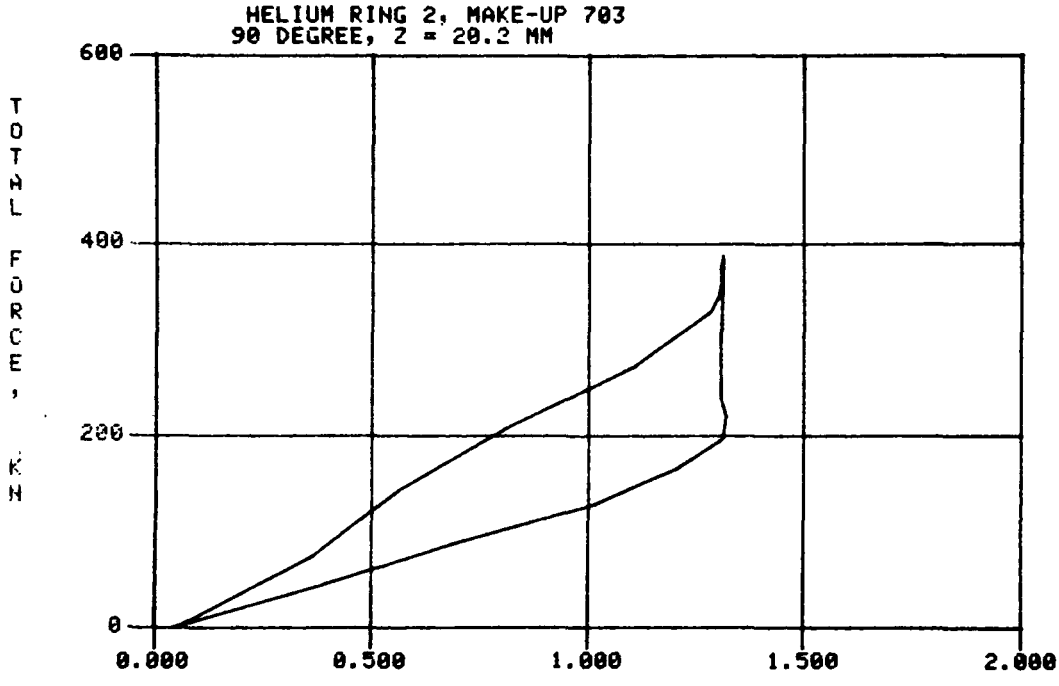

HELIUM RING 2, MAKE-UP 703
60 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN

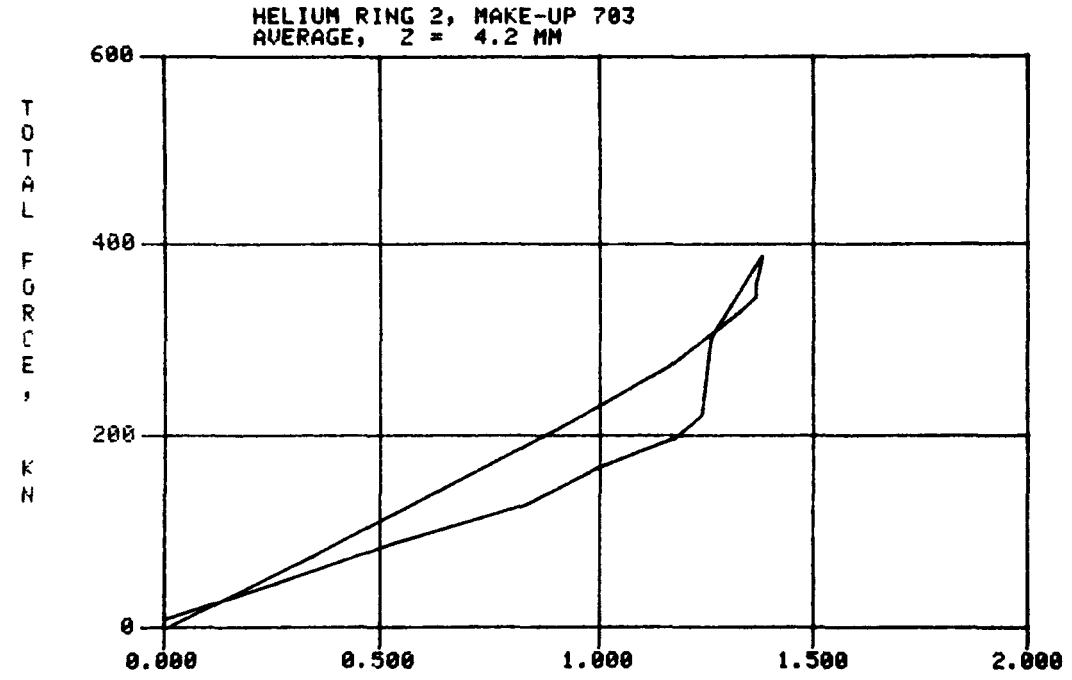

HELIUM RING 2, MAKE-UP 703
90 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN

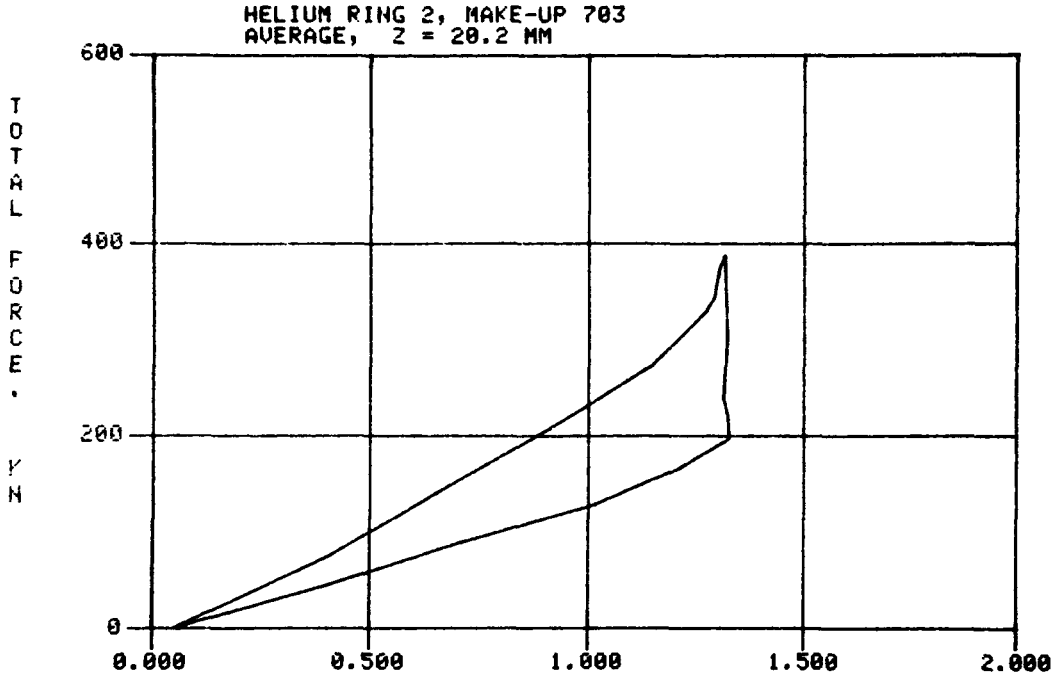

HELIUM RING 2, MAKE-UP 703
0 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


HELIUM RING 2, MAKE-UP 703
30 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


HELIUM RING 2, MAKE-UP 703
60 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


HELIUM RING 2, MAKE-UP 703
90 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


HELIUM RING 2, MAKE-UP 703
AVERAGE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


HELIUM RING 2, MAKE-UP 703
AVERAGE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN

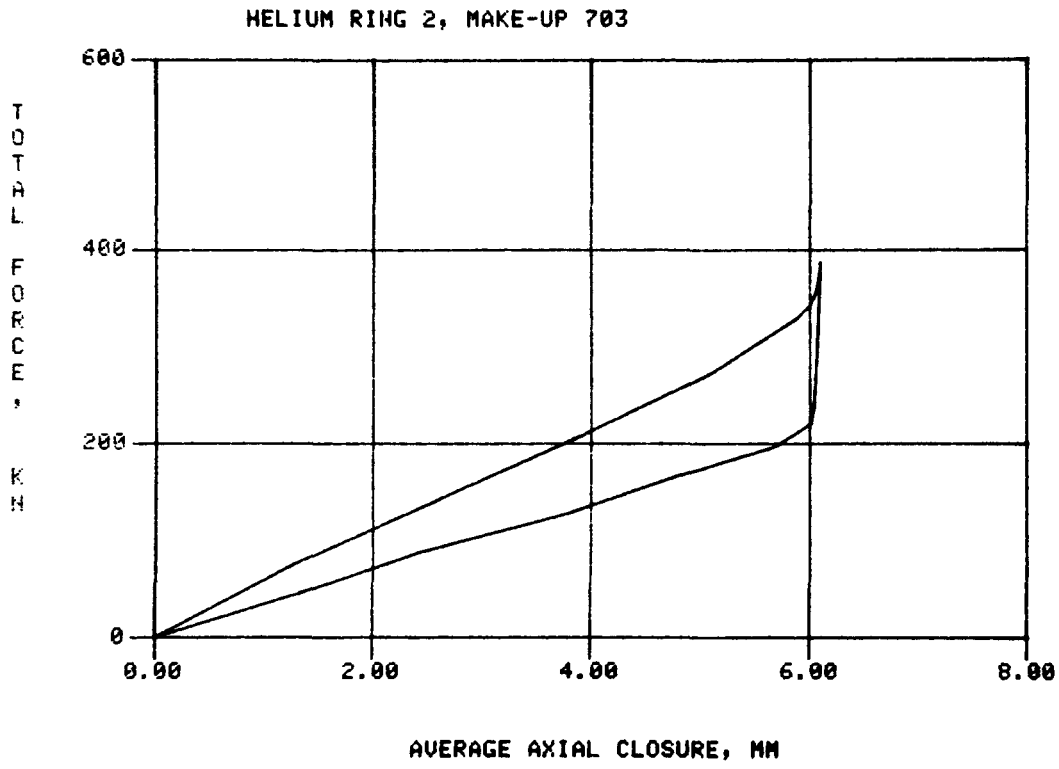

HELIUM RING 2, MAKE-UP 703
TOTAL FORCE, KN
600
400
200
0
0.00
2.00
4.00
6.00
8.00
AVERAGE AXIAL CLOSURE, MM

TABLE . DATA FROM TEST 704 SCAN 1. PRESSURE .0 KPA
AVERAGE TEMPERATURE 297.2 K. TIME 312 10/06/11

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		-0.				-0.	-0.	-0.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		0.00	0.00	0.00	0.00	0.00	0.00	0.00
STRAIN UM/M								
AXIAL	U	273.	40.	40.	0.			88.
HOOP	U	-24.	-80.	-96.	-56.			-64.
COMBINED	U	274.	90.	104.	56.			131.
AXIAL	L	32.	168.	-104.	-144.			-12.
HOOP	L	-64.	-96.	505.	-56.			72.
COMBINED	L	72.	194.	516.	155.			234.

COMMENTS NO FORCE ON SEAL
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 704 SCAN 2. PRESSURE .0 KPA
AVERAGE TEMPERATURE 297.2 K. TIME 312 10/22/29

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		27.				27.	27.	27.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		1.28	1.12	1.00	1.02	1.16	1.70	1.21
STRAIN UM/M								
AXIAL	U	241.	72.	104.	16.			108.
HOOP	U	-297.	-513.	-682.	-409.			-475.
COMBINED	U	382.	518.	690.	409.			500.
AXIAL	L	-265.	0.	-265.	-385.			-229.
HOOP	L	-449.	-553.	8.	-457.			-363.
COMBINED	L	521.	553.	265.	598.			484.

COMMENTS

ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 704 SCAN 3. PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.9 K. TIME 312 10/27/41

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		49.				47.	47.	48.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		2.53	2.43	2.35	2.42	2.54	2.83	2.52
STRAIN UM/M								
AXIAL	U	225.	88.	112.	32.			114.
HOOP	U	-577.	-906.	-898.	-778.			-790.
COMBINED	U	620.	911.	905.	779.			803.
AXIAL	L	-449.	-152.	-393.	-537.			-383.
HOOP	L	-810.	-938.	-337.	-826.			-728.
COMBINED	L	926.	951.	518.	985.			845.

COMMENTS

ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 704 SCAN 4. PRESSURE .0 KPA
AVERAGE TEMPERATURE 297.5 K. TIME 312 10/33/11

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		69.				69.	69.	69.
DIAMETER								
MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE								
MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		3.76	3.65	3.56	3.63	3.77	4.03	3.74
STRAIN UM/M								
AXIAL	U	233.	112.	104.	48.			124.
HOOP	U	-930.	-1251.	-1195.	-1139.			-1129.
COMBINED	U	959.	1256.	1200.	1140.			1139.
AXIAL	L	-610.	-297.	-569.	-698.			-543.
HOOP	L	-1171.	-1307.	-690.	-1203.			-1093.
COMBINED	L	1320.	1341.	894.	1391.			1236.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 704 SCAN 5. PRESSURE .0 KPA
AVERAGE TEMPERATURE 297.2 K. TIME 312 10/38/35

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		91.				92.	91.	91.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		5.04	4.93	4.82	4.89	4.98	5.14	4.97
STRAIN UM/M								
AXIAL	U	249.	104.	104.	32.			122.
HOOP	U	-1339.	-1516.	-1452.	-1387.			-1424.
COMBINED	U	1362.	1519.	1455.	1388.			1431.
AXIAL	L	-754.	-417.	-698.	-850.			-680.
HOOP	L	-1564.	-1668.	-1051.	-1516.			-1450.
COMBINED	L	1736.	1719.	1261.	1738.			1614.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 704 SCAN 6. PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.9 K. TIME 312 10/43/06

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		99.				101.	99.	100.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		5.52	5.39	5.25	5.28	5.36	5.52	5.39
STRAIN UM/M								
AXIAL	U	273.	104.	120.	32.			132.
HOOP	U	-1508.	-1588.	-1548.	-1484.			-1532.
COMBINED	U	1532.	1591.	1553.	1484.			1540.
AXIAL	L	-794.	-465.	-730.	-898.			-722.
HOOP	L	-1676.	-1772.	-1163.	-1644.			-1564.
COMBINED	L	1855.	1832.	1373.	1873.			1733.

COMMENTS

ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 704 SCAN 7, PRESSURE .0 KPA
AVERAGE TEMPERATURE 297.5 K. TIME 312 10/48/59

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		108.				110.	108.	108.
DIAMETER								
MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE								
MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		5.93	5.70	5.44	5.42	5.52	6.02	5.67
STRAIN UM/M								
AXIAL	U	289.	104.	128.	48.			142.
HOOP	U	-1692.	-1684.	-1684.	-1596.			-1664.
COMBINED	U	1717.	1687.	1689.	1597.			1672.
AXIAL	L	-842.	-505.	-770.	-906.			-756.
HOOP	L	-1805.	-1885.	-1267.	-1732.			-1672.
COMBINED	L	1991.	1951.	1483.	1955.			1845.

COMMENTS

ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 704 SCAN 8. PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.9 K. TIME 312 10/53/45

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		111.				114.	114.	113.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		6.05	5.79	5.48	5.43	5.53	6.14	5.74
STRAIN UM/M								
AXIAL	U	297.	104.	120.	64.			146.
HOOP	U	-1724.	-1716.	-1724.	-1636.			-1700.
COMBINED	U	1750.	1719.	1728.	1637.			1709.
AXIAL	L	-858.	-513.	-794.	-930.			-774.
HOOP	L	-1845.	-1909.	-1315.	-1764.			-1708.
COMBINED	L	2034.	1977.	1536.	1995.			1886.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 704 SCAN 9. PRESSURE .0 KPA
AVERAGE TEMPERATURE 297.5 K. TIME 312 10/59/24

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		119.				122.	120.	120.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		6.29	5.97	5.61	5.50	5.73	6.23	5.89
STRAIN UM/M								
AXIAL	U	289.	88.	120.	80.			144.
HOOP	U	-1756.	-1732.	-1772.	-1668.			-1732.
COMBINED	U	1780.	1735.	1776.	1670.			1740.
AXIAL	L	-874.	-521.	-810.	-866.			-768.
HOOP	L	-1893.	-1957.	-1347.	-1796.			-1748.
COMBINED	L	2085.	2025.	1572.	1994.			1919.

COMMENTS

ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 704 SCAN 10. PRESSURE .0 KPA
AVERAGE TEMPERATURE 297.2 K. TIME 312 11/03/05

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		127.				125.	125.	125.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		6.31	5.99	5.61	5.49	5.56	6.21	5.86
STRAIN UM/M								
AXIAL	U	297.	104.	120.	88.			152.
HOOP	U	-1756.	-1740.	-1780.	-1684.			-1740.
COMBINED	U	1781.	1743.	1784.	1687.			1749.
AXIAL	L	-834.	-513.	-810.	-858.			-754.
HOOP	L	-1909.	-1973.	-1347.	-1805.			-1758.
COMBINED	L	2083.	2039.	1572.	1998.			1923.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 704 SCAN 11. PRESSURE .0 KPA
AVERAGE TEMPERATURE 296.9 K. TIME 312 11/10/30

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		128.				128.	133.	130.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		6.32	6.00	5.62	5.50	5.56	6.23	5.87
STRAIN UM/M								
AXIAL	U	289.	104.	128.	80.			150.
HOOP	U	-1780.	-1748.	-1780.	-1684.			-1748.
COMBINED	U	1804.	1751.	1785.	1686.			1757.
AXIAL	L	-826.	-513.	-802.	-858.			-750.
HOOP	L	-1909.	-1973.	-1371.	-1805.			-1764.
COMBINED	L	2080.	2039.	1589.	1998.			1926.

COMMENTS SEAL MADE UP. NO LEAK RATE MEASURMENT MADE
ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 704 SCAN 12. PRESSURE .0 KPA
AVERAGE TEMPERATURE 297.2 K. TIME 312 12/28/37

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		102.				112.	108.	107.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		6.28	5.98	5.62	5.49	5.54	6.19	5.85
STRAIN UM/M								
AXIAL	U	313.	104.	112.	72.			150.
HOOP	U	-1790.	-1764.	-1780.	-1684.			-1752.
COMBINED	U	1808.	1767.	1784.	1686.			1761.
AXIAL	L	-834.	-505.	-818.	-874.			-758.
HOOP	L	-1917.	-1973.	-1428.	-1805.			-1780.
COMBINED	L	2090.	2037.	1645.	2005.			1944.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 704 SCAN 13. PRESSURE .0 KPA
AVERAGE TEMPERATURE 297.5 K. TIME 312 12/32/01

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		79.				78.	73.	77.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		6.24	5.96	5.61	5.46	5.46	6.13	5.81
STRAIN UM/M								
AXIAL	U	305.	104.	112.	56.			144.
HOOP	U	-1756.	-1780.	-1788.	-1708.			-1758.
COMBINED	U	1783.	1783.	1792.	1709.			1767.
AXIAL	L	-858.	-505.	-818.	-938.			-780.
HOOP	L	-1901.	-1973.	-1420.	-1805.			-1774.
COMBINED	L	2085.	2037.	1638.	2034.			1949.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 704 SCAN 14. PRESSURE .0 KPA
AVERAGE TEMPERATURE 297.5 K. TIME 312 12/36/00

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		66.				66.	67.	66.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		6.00	5.78	5.46	5.31	5.30	5.91	5.62
STRAIN UM/M								
AXIAL	U	321.	136.	144.	96.			174.
HOOP	U	-1724.	-1813.	-1853.	-1756.			-1786.
COMBINED	U	1754.	1818.	1858.	1759.			1797.
AXIAL	L	-810.	-457.	-802.	-930.			-750.
HOOP	L	-1813.	-1893.	-1371.	-1780.			-1714.
COMBINED	L	1985.	1947.	1589.	2009.			1882.

COMMENTS

ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 704 SCAN 15. PRESSURE .0 KPA
AVERAGE TEMPERATURE 297.5 K. TIME 312 12/39/48

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		57.				56.	58.	57.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		5.35	5.12	4.86	4.74	4.74	5.31	5.02
STRAIN UM/M								
AXIAL	U	353.	168.	201.	136.			215.
HOOP	U	-1636.	-1796.	-1869.	-1700.			-1750.
COMBINED	U	1674.	1804.	1879.	1706.			1766.
AXIAL	L	-730.	-401.	-746.	-850.			-682.
HOOP	L	-1644.	-1724.	-1235.	-1636.			-1560.
COMBINED	L	1799.	1770.	1443.	1844.			1714.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 704 SCAN 16. PRESSURE .0 KPA
AVERAGE TEMPERATURE 297.5 K. TIME 312 12/43/43

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		43.				42.	43.	43.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		3.88	3.75	3.59	3.53	3.55	3.90	3.70
STRAIN UM/M								
AXIAL	U	337.	168.	201.	128.			209.
HOOP	U	-1235.	-1428.	-1540.	-1355.			-1389.
COMBINED	U	1280.	1437.	1553.	1361.			1408.
AXIAL	L	-553.	-241.	-593.	-698.			-521.
HOOP	L	-1227.	-1331.	-842.	-1235.			-1159.
COMBINED	L	1346.	1353.	1030.	1419.			1287.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 704 SCAN 17, PRESSURE .0 KPA
AVERAGE TEMPERATURE 297.5 K. TIME 312 12/47/27

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		22.				21.	23.	22.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		1.83	1.68	1.57	1.59	1.70	2.19	1.76
STRAIN UM/M								
AXIAL	U	321.	120.	128.	64.			158.
HOOP	U	-690.	-826.	-898.	-754.			-792.
COMBINED	U	761.	835.	907.	757.			815.
AXIAL	L	-329.	-24.	-369.	-457.			-295.
HOOP	L	-674.	-738.	-225.	-642.			-569.
COMBINED	L	750.	738.	432.	788.			677.

COMMENTS

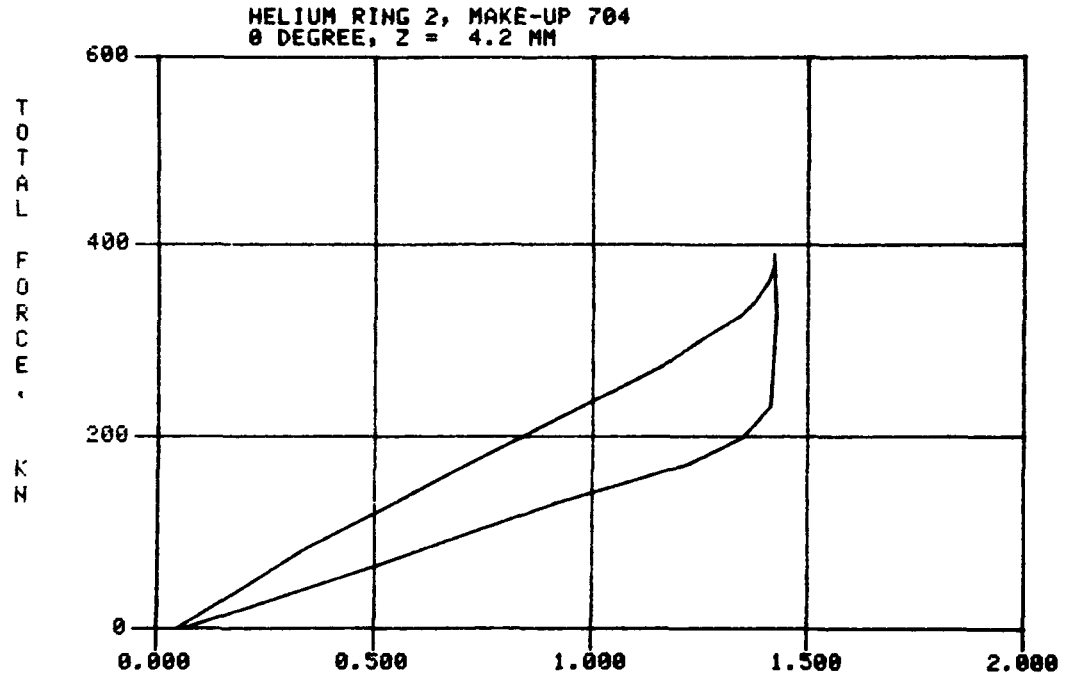
ALL DATA CORRECTED TO 294.5 K.

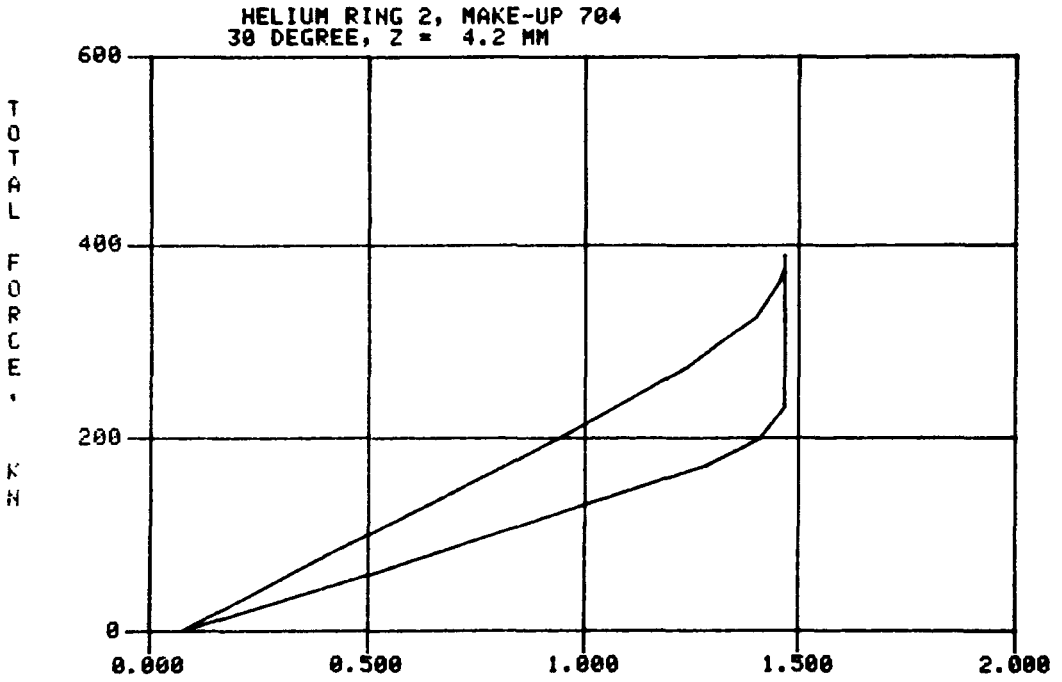
TABLE . DATA FROM TEST 704 SCAN 18. PRESSURE .0 KPA
AVERAGE TEMPERATURE 297.2 K. TIME 312 12/51/00

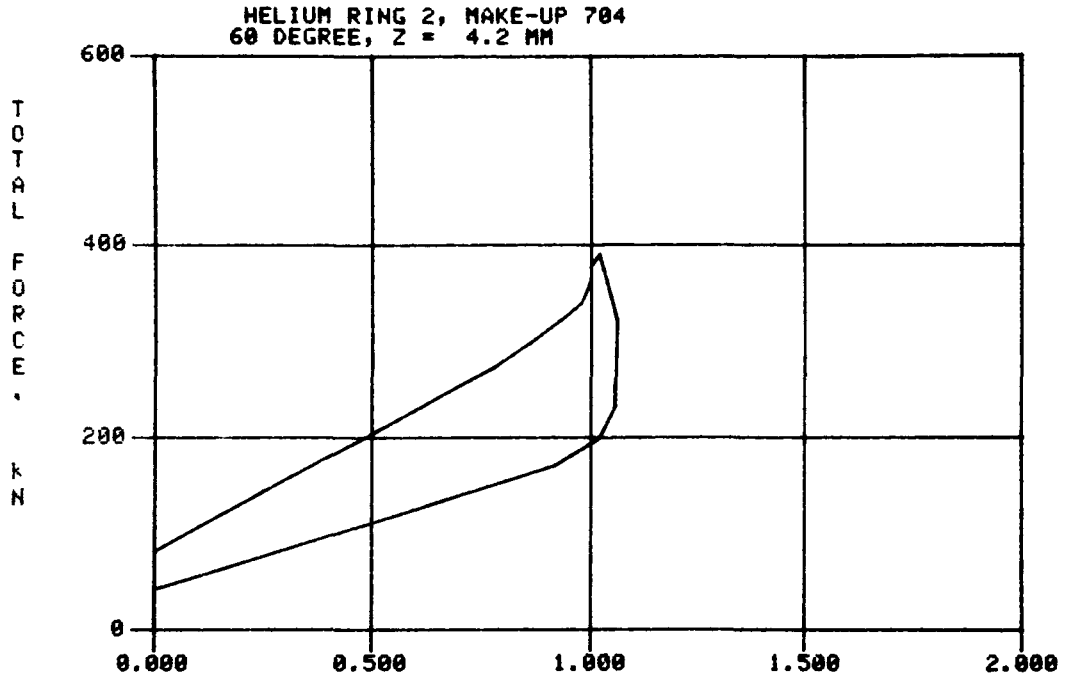
ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		-0.				-0.	-0.	-0.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		0.00	0.00	0.00	0.00	0.00	0.00	0.00
STRAIN UM/M								
AXIAL	U	321.	56.	40.	0.			104.
HOOP	U	-40.	-80.	-104.	-56.			-70.
COMBINED	U	323.	98.	112.	56.			147.
AXIAL	L	8.	209.	-136.	-152.			-18.
HOOP	L	-88.	-96.	425.	-48.			48.
COMBINED	L	89.	230.	446.	160.			231.

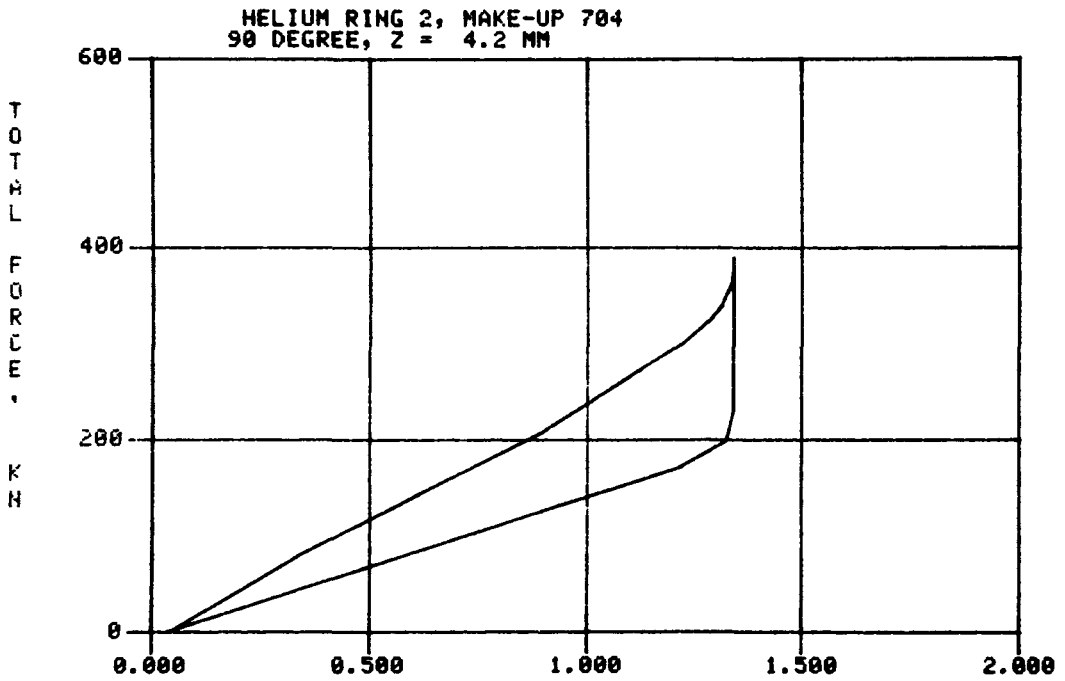
COMMENTS NO FORCE ON SEAL
ALL DATA CORRECTED TO 294.5 K.

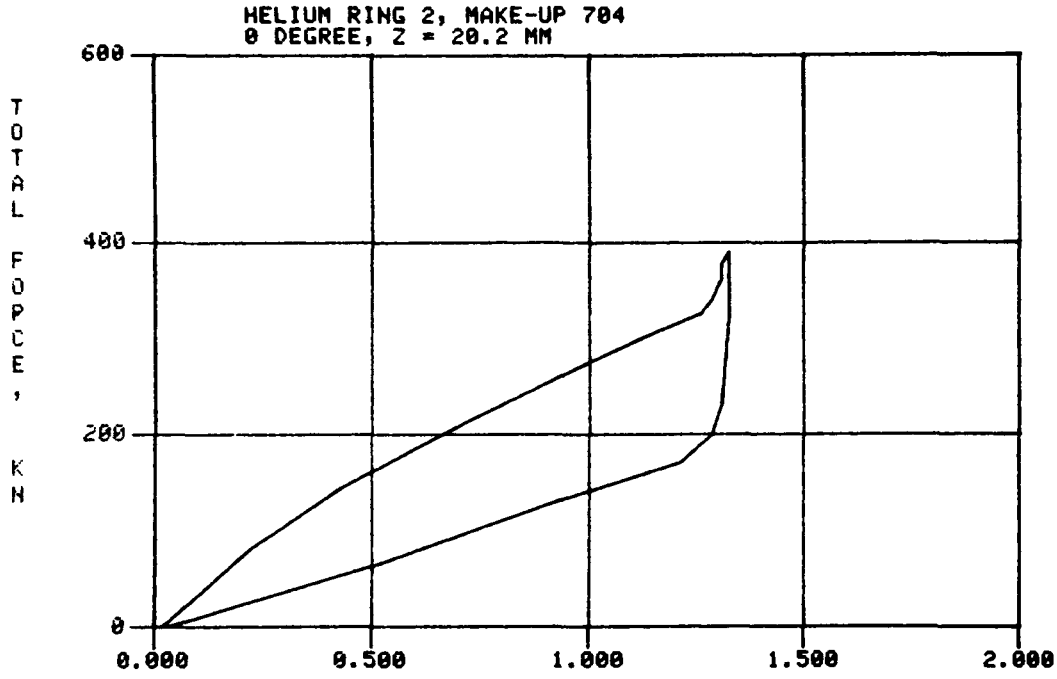
704 18 20

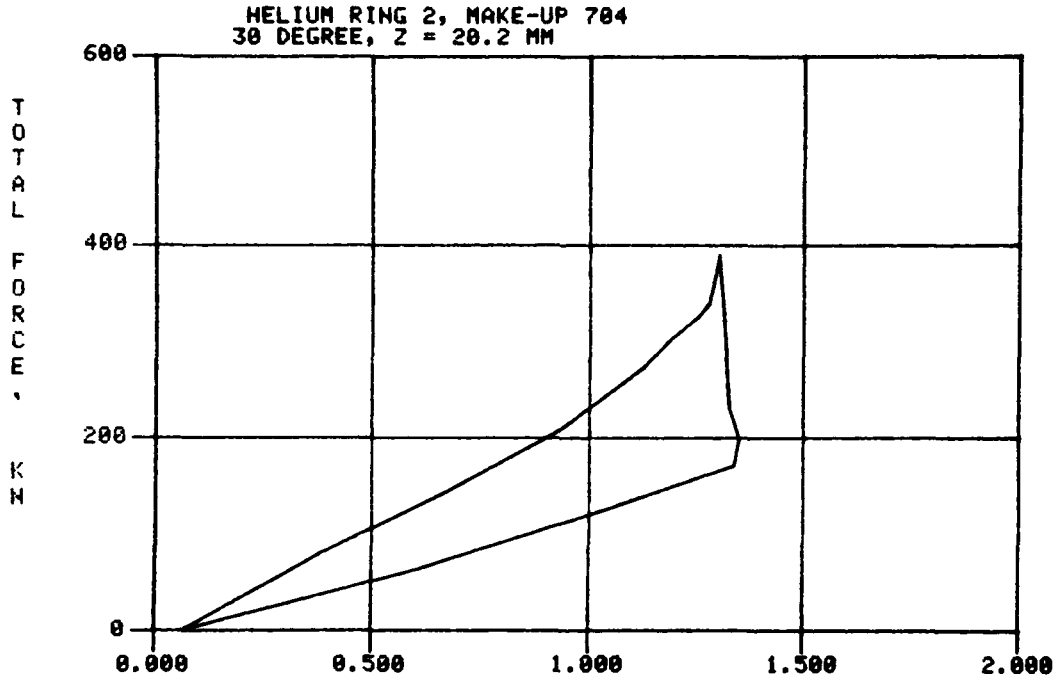

HELIUM RING 2, MAKE-UP 704
0 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN

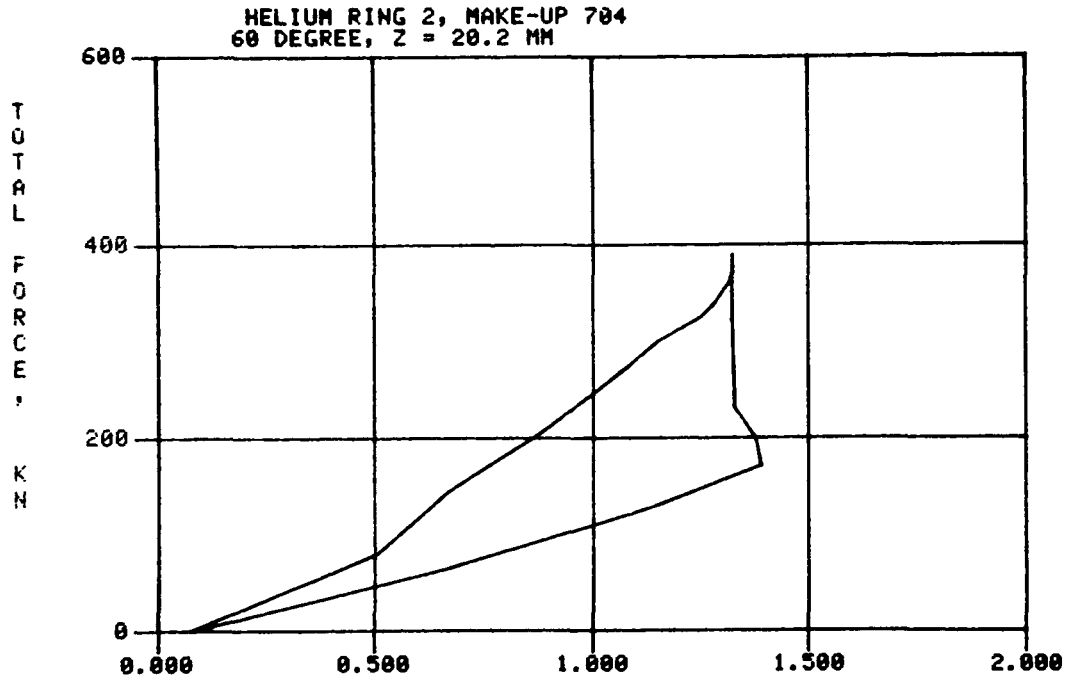

HELIUM RING 2, MAKE-UP 704
30 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN

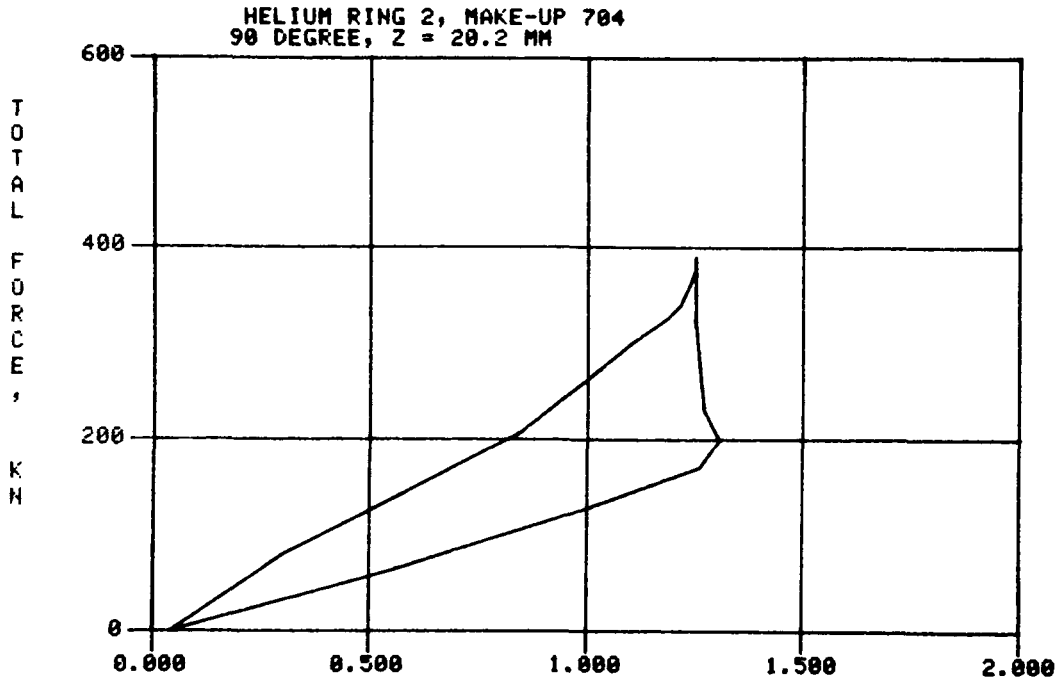

HELIUM RING 2, MAKE-UP 704
60 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN

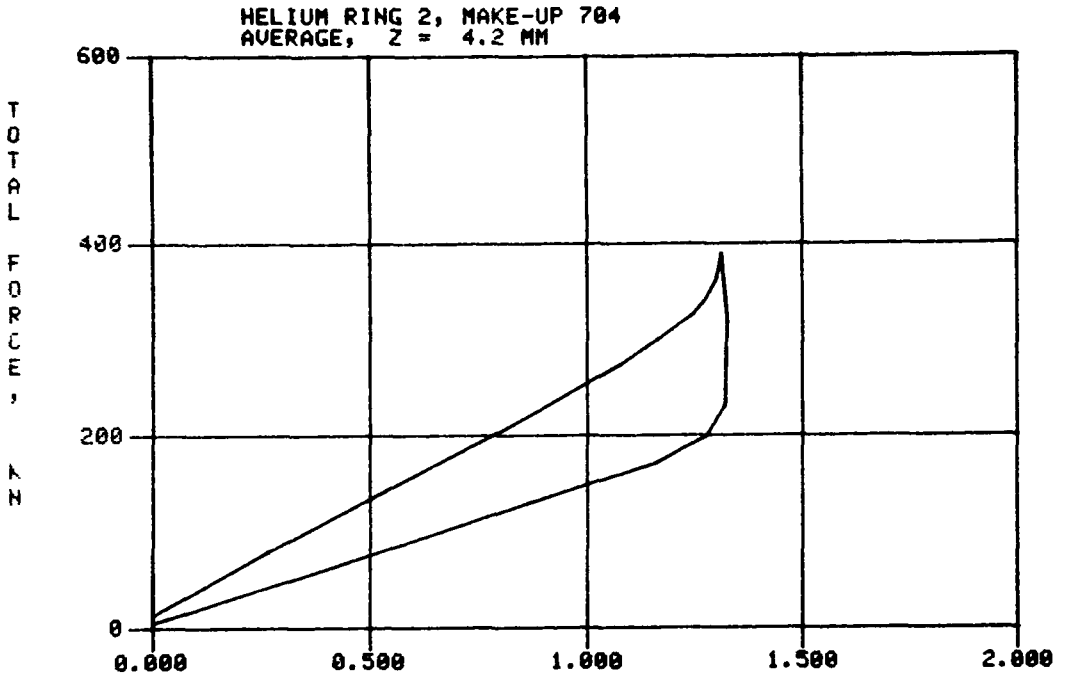

HELIUM RING 2, MAKE-UP 704
90 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN

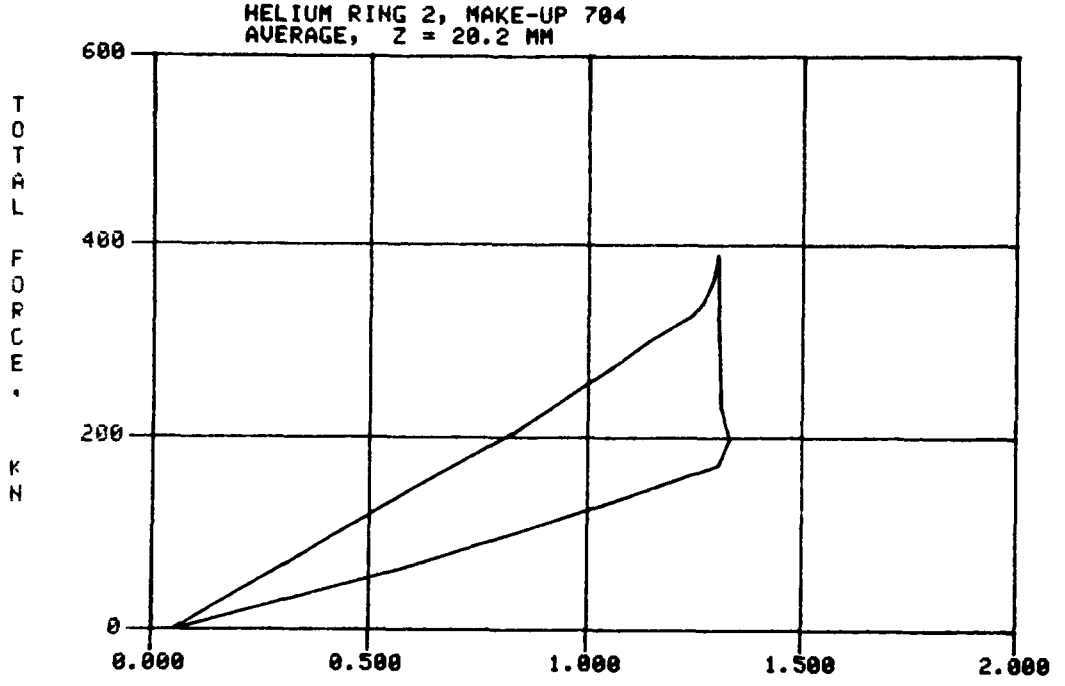

HELIUM RING 2, MAKE-UP 704
0 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


HELIUM RING 2, MAKE-UP 704
30 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


HELIUM RING 2, MAKE-UP 704
60 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


HELIUM RING 2, MAKE-UP 704
90 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


HELIUM RING 2, MAKE-UP 704
AVERAGE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


HELIUM RING 2, MAKE-UP 704
AVERAGE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN

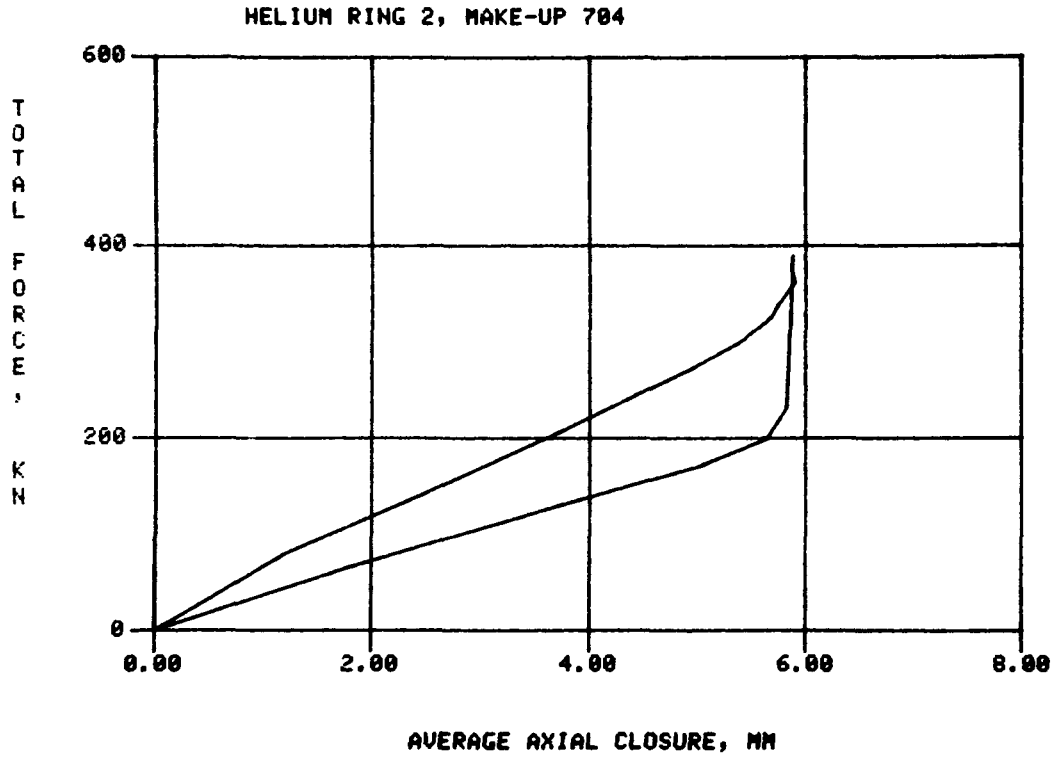

HELIUM RING 2, MAKE-UP 704
TOTAL FORCE, KN
600
400
200
0
0.00
2.00
4.00
6.00
8.00
AVERAGE AXIAL CLOSURE, MM

TABLE . DATA FROM TEST 705 SCAN 1. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.5 K. TIME 320 10/41/21

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		-0.				-0.	-0.	-0.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		0.00	0.00	0.00	0.00	0.00	0.00	0.00
STRAIN UM/M								
AXIAL	U	321.	56.	40.	0.			104.
HOOP	U	-40.	-80.	-104.	-56.			-70.
COMBINED	U	323.	98.	112.	56.			147.
AXIAL	L	8.	209.	-136.	-152.			-18.
HOOP	L	-88.	-96.	425.	-48.			48.
COMBINED	L	89.	230.	446.	160.			231.

COMMENTS 60 DEG LOWER HOOP GAGE BAD
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 705 SCAN 2. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.5 K. TIME 320 10/52/20

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		28.				27.	27.	27.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		1.47	1.42	1.35	1.37	1.43	1.61	1.44
STRAIN UM/M								
AXIAL	U	289.	120.	96.	0.			126.
HOOP	U	-385.	-682.	-690.	-465.			-555.
COMBINED	U	481.	692.	696.	465.			584.
AXIAL	L	-305.	32.	-321.	-433.			-257.
HOOP	L	-521.	-634.	-104.	-513.			-443.
COMBINED	L	604.	634.	337.	672.			562.

COMMENTS

ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 705 SCAN 3. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.5 K. TIME 320 10/56/12

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		47.				47.	48.	47.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		2.75	2.74	2.65	2.65	2.63	2.62	2.67
STRAIN UM/M								
AXIAL	U	281.	112.	104.	0.			124.
HOOP	U	-706.	-922.	-1019.	-714.			-840.
COMBINED	U	760.	929.	1024.	714.			857.
AXIAL	L	-473.	-88.	-457.	-593.			-403.
HOOP	L	-882.	-962.	-457.	-850.			-788.
COMBINED	L	1001.	966.	646.	1037.			913.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 705 SCAN 4. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.5 K. TIME 320 10/59/21

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		69.				69.	69.	69.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		3.93	3.94	3.87	3.90	3.91	3.87	3.90
STRAIN UM/M								
AXIAL	U	305.	120.	120.	24.			142.
HOOP	U	-1139.	-1227.	-1283.	-1107.			-1189.
COMBINED	U	1179.	1233.	1289.	1107.			1202.
AXIAL	L	-634.	-241.	-610.	-738.			-555.
HOOP	L	-1267.	-1347.	-818.	-1219.			-1163.
COMBINED	L	1417.	1369.	1020.	1425.			1308.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 705 SCAN 5. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.5 K. TIME 320 11/03/08

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		89.				91.	90.	90.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		5.09	5.04	4.95	4.99	5.02	5.02	5.02
STRAIN UM/M								
AXIAL	U	321.	112.	112.	64.			152.
HOOP	U	-1492.	-1476.	-1572.	-1532.			-1518.
COMBINED	U	1526.	1480.	1576.	1533.			1529.
AXIAL	L	-762.	-361.	-746.	-882.			-688.
HOOP	L	-1604.	-1660.	-1155.	-1580.			-1500.
COMBINED	L	1776.	1699.	1375.	1810.			1665.

COMMENTS

ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 705 SCAN 6. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.5 K. TIME 320 11/09/31

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		108.				109.	109.	109.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		5.97	5.87	5.68	5.68	5.72	5.87	5.80
STRAIN UM/M								
AXIAL	U	313.	112.	128.	80.			158.
HOOP	U	-1700.	-1676.	-1764.	-1724.			-1716.
COMBINED	U	1729.	1680.	1769.	1726.			1726.
AXIAL	L	-874.	-457.	-834.	-962.			-782.
HOOP	L	-1861.	-1917.	-1387.	-1796.			-1740.
COMBINED	L	2056.	1971.	1619.	2038.			1921.

COMMENTS

ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 705 SCAN 7. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.5 K. TIME 320 11/13/34

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		113.				115.	114.	114.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		6.12	5.99	5.75	5.71	5.73	5.95	5.88
STRAIN UM/M								
AXIAL	U	313.	104.	136.	80.			158.
HOOP	U	-1708.	-1708.	-1788.	-1740.			-1736.
COMBINED	U	1737.	1711.	1794.	1742.			1746.
AXIAL	L	-890.	-473.	-850.	-970.			-796.
HOOP	L	-1885.	-1949.	-1412.	-1821.			-1766.
COMBINED	L	2084.	2005.	1648.	2063.			1950.

COMMENTS

ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 705 SCAN 8. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.5 K. TIME 320 11/22/26

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		116.				119.	115.	117.
DIAMETER								
MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE								
MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		6.21	6.06	5.80	5.73	5.72	5.97	5.92
STRAIN UM/M								
AXIAL	U	297.	104.	136.	88.			156.
HOOP	U	-1724.	-1716.	-1805.	-1756.			-1750.
COMBINED	U	1750.	1719.	1810.	1759.			1759.
AXIAL	L	-898.	-481.	-858.	-954.			-798.
HOOP	L	-1909.	-1965.	-1428.	-1821.			-1780.
COMBINED	L	2110.	2023.	1666.	2056.			1963.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 705 SCAN 9. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.5 K. TIME 320 11/25/24

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		123.				122.	120.	122.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		6.26	6.10	5.82	5.74	5.75	6.00	5.94
STRAIN UM/M								
AXIAL	U	297.	112.	136.	88.			158.
HOOP	U	-1740.	-1724.	-1805.	-1764.			-1758.
COMBINED	U	1765.	1728.	1810.	1767.			1767.
AXIAL	L	-842.	-473.	-850.	-930.			-774.
HOOP	L	-1917.	-1981.	-1444.	-1821.			-1790.
COMBINED	L	2094.	2037.	1675.	2044.			1963.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 705 SCAN 10. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.5 K. TIME 320 11/28/41

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		129.				135.	132.	132.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		6.28	6.10	5.82	5.76	5.77	6.03	5.96
STRAIN UM/M								
AXIAL	U	313.	112.	136.	96.			164.
HOOP	U	-1748.	-1740.	-1821.	-1764.			-1768.
COMBINED	U	1776.	1744.	1826.	1767.			1778.
AXIAL	L	-818.	-473.	-842.	-914.			-762.
HOOP	L	-1925.	-1989.	-1452.	-1829.			-1798.
COMBINED	L	2091.	2044.	1678.	2044.			1965.

COMMENTS LEAK RATE GREATER THAN 2X10E-4 ATM CC/S
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 705 SCAN 11. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.5 K. TIME 320 12/27/10

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		116.				112.	112.	113.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		6.26	6.10	5.82	5.74	5.73	6.01	5.94
STRAIN UM/M								
AXIAL	U	337.	112.	136.	104.			172.
HOOP	U	-1748.	-1732.	-1813.	-1772.			-1766.
COMBINED	U	1781.	1736.	1818.	1775.			1777.
AXIAL	L	-810.	-457.	-834.	-946.			-762.
HOOP	L	-1925.	-1981.	-1428.	-1829.			-1790.
COMBINED	L	2088.	2033.	1653.	2059.			1958.

COMMENTS PROCEEDING DOWNWARDS
ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 705 SCAN 12, PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.5 K. TIME 320 12/29/37

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		96.				92.	96.	95.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		6.23	6.08	5.81	5.72	5.69	5.97	5.92
STRAIN UM/M								
AXIAL	U	329.	112.	120.	88.			162.
HOOP	U	-1748.	-1740.	-1796.	-1772.			-1764.
COMBINED	U	1779.	1744.	1801.	1775.			1775.
AXIAL	L	-834.	-465.	-842.	-946.			-772.
HOOP	L	-1925.	-1973.	-1420.	-1829.			-1786.
COMBINED	L	2098.	2027.	1651.	2059.			1959.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 705 SCAN 13. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.5 K. TIME 320 12/32/40

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		76.				77.	75.	76.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		6.16	6.05	5.81	5.71	5.66	5.92	5.89
STRAIN UM/M								
AXIAL	U	321.	120.	128.	80.			162.
HOOP	U	-1708.	-1780.	-1821.	-1780.			-1772.
COMBINED	U	1738.	1784.	1825.	1782.			1782.
AXIAL	L	-850.	-457.	-842.	-946.			-774.
HOOP	L	-1885.	-1973.	-1420.	-1829.			-1776.
COMBINED	L	2068.	2025.	1651.	2059.			1951.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 705 SCAN 14. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.5 K. TIME 320 12/37/48

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		68.				66.	65.	66.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		5.77	5.68	5.45	5.35	5.30	5.50	5.51
STRAIN UM/M								
AXIAL	U	369.	184.	201.	152.			227.
HOOP	U	-1716.	-1813.	-1885.	-1805.			-1805.
COMBINED	U	1755.	1822.	1895.	1811.			1821.
AXIAL	L	-778.	-409.	-810.	-898.			-724.
HOOP	L	-1780.	-1853.	-1339.	-1756.			-1682.
COMBINED	L	1943.	1897.	1565.	1973.			1845.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE , DATA FROM TEST 705 SCAN 15. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.5 K. TIME 320 12/40/51

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		54.				53.	51.	53.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		4.60	4.51	4.33	4.27	4.25	4.45	4.40
STRAIN UM/M								
AXIAL	U	385.	192.	209.	136.			231.
HOOP	U	-1460.	-1588.	-1668.	-1548.			-1566.
COMBINED	U	1510.	1600.	1681.	1554.			1586.
AXIAL	L	-658.	-281.	-674.	-762.			-593.
HOOP	L	-1452.	-1532.	-1011.	-1444.			-1359.
COMBINED	L	1594.	1557.	1214.	1632.			1499.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 705 SCAN 16. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.5 K. TIME 320 12/43/31

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		40.				40.	39.	40.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		3.42	3.43	3.39	3.42	3.42	3.37	3.41
STRAIN UM/M								
AXIAL	U	377.	176.	176.	104.			209.
HOOP	U	-1139.	-1291.	-1379.	-1251.			-1265.
COMBINED	U	1200.	1303.	1391.	1255.			1287.
AXIAL	L	-545.	-168.	-553.	-634.			-475.
HOOP	L	-1131.	-1227.	-706.	-1131.			-1049.
COMBINED	L	1255.	1239.	897.	1296.			1172.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 705 SCAN 17. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.5 K. TIME 320 12/46/39

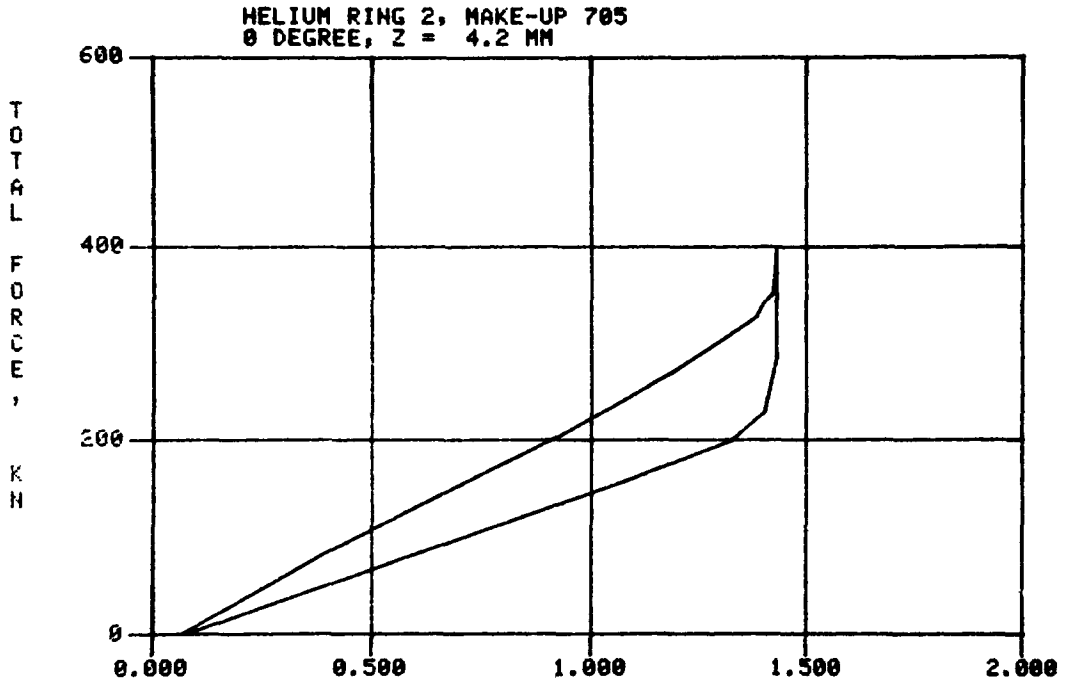
ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		24.				24.	24.	24.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		1.96	2.00	2.01	2.07	2.12	2.08	2.04
STRAIN UM/M								
AXIAL	U	329.	112.	104.	40.			146.
HOOP	U	-682.	-834.	-890.	-754.			-790.
COMBINED	U	757.	842.	896.	755.			812.
AXIAL	L	-377.	-24.	-393.	-473.			-317.
HOOP	L	-722.	-786.	-257.	-698.			-616.
COMBINED	L	814.	786.	469.	843.			728.

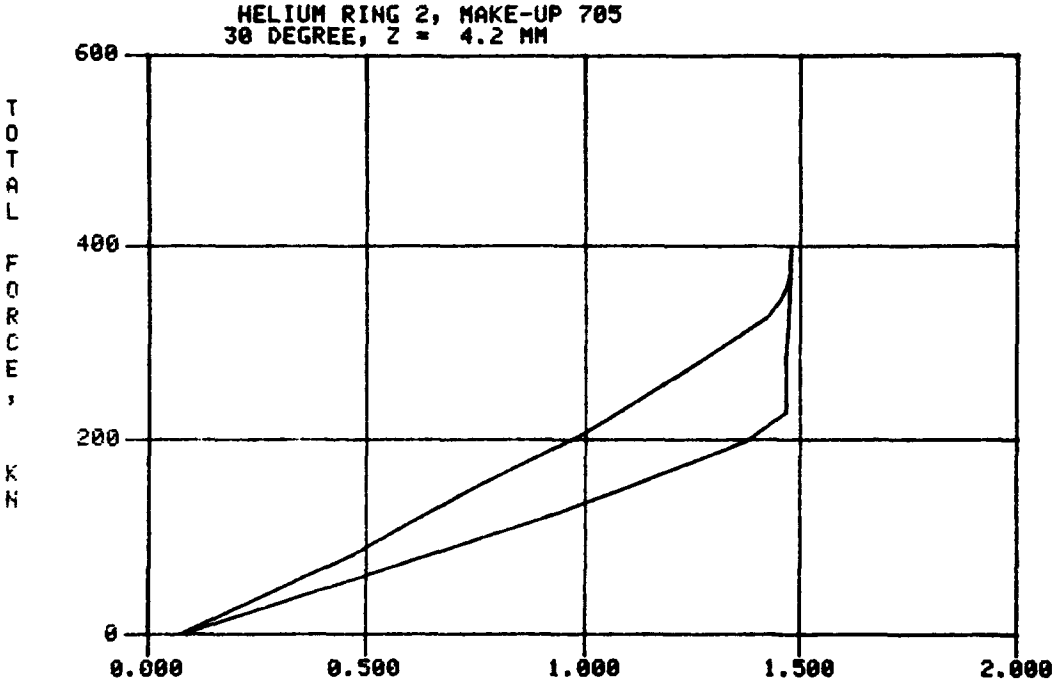
COMMENTS
ALL DATA CORRECTED TO 294.5 K.

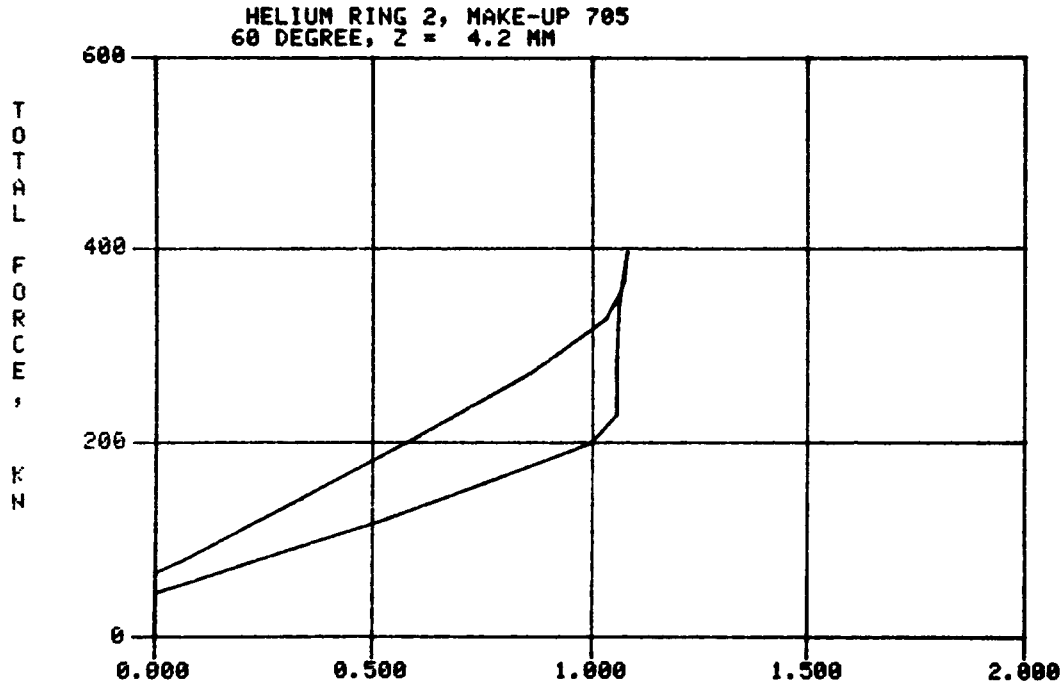
TABLE . DATA FROM TEST 705 SCAN 18. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.5 K. TIME 320 12/50/48

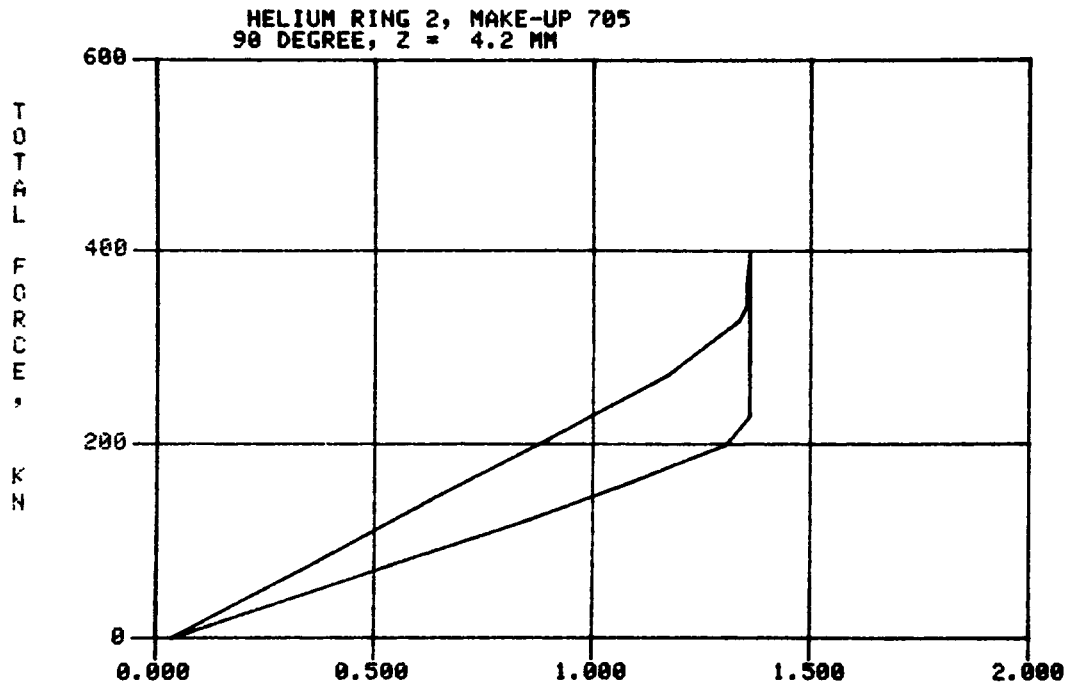
ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		-0.				-0.	-0.	-0.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		0.00	0.00	0.00	0.00	0.00	0.00	0.00
STRAIN UM/M								
AXIAL	U	345.	64.	32.	-8.			108.
HOOP	U	-56.	-96.	-112.	-64.			-82.
COMBINED	U	349.	116.	117.	65.			162.
AXIAL	L	0.	233.	-152.	-168.			-22.
HOOP	L	-104.	-104.	449.	-56.			46.
COMBINED	L	104.	255.	474.	178.			253.

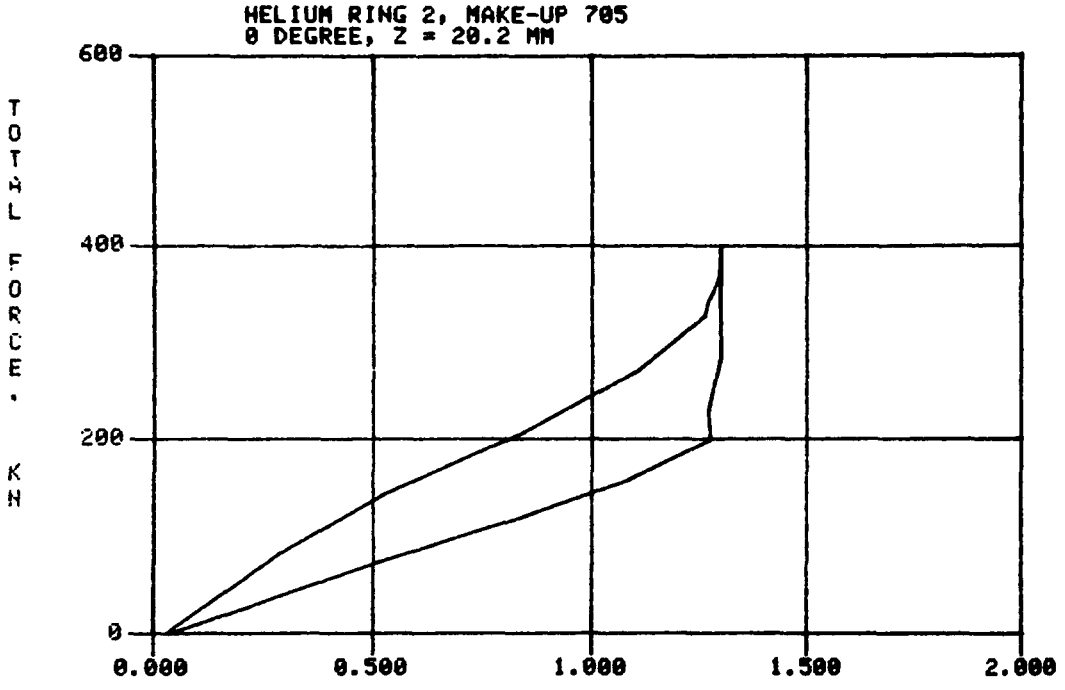
COMMENTS NO WEIGHT ON SEAL
ALL DATA CORRECTED TO 294.5 K.

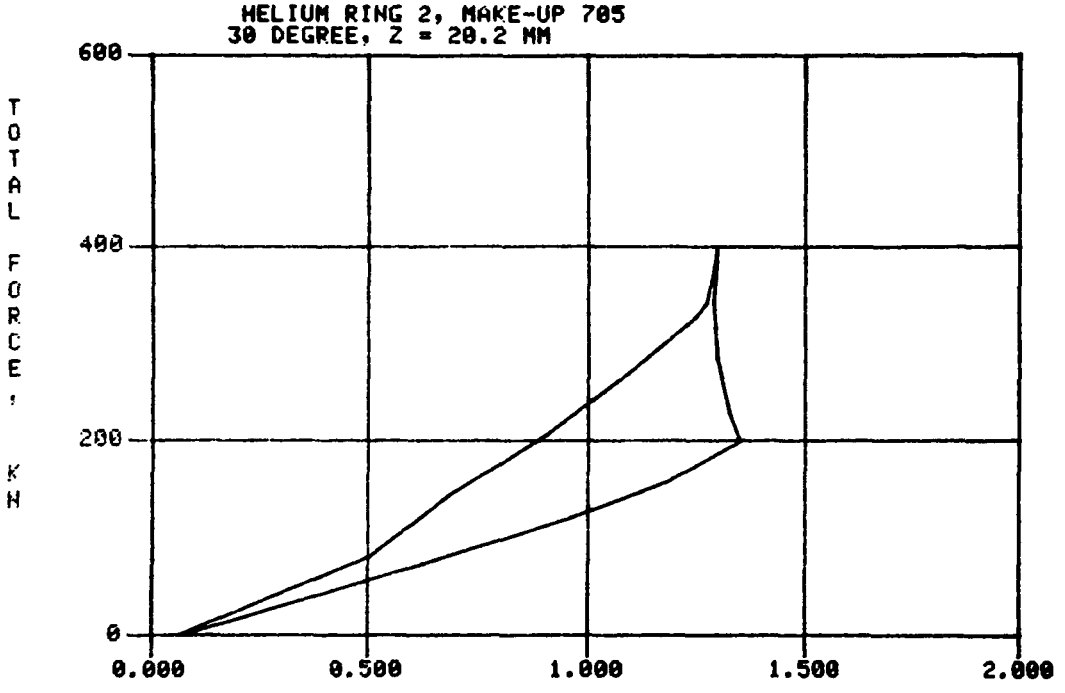

HELIUM RING 2, MAKE-UP 705
0 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN

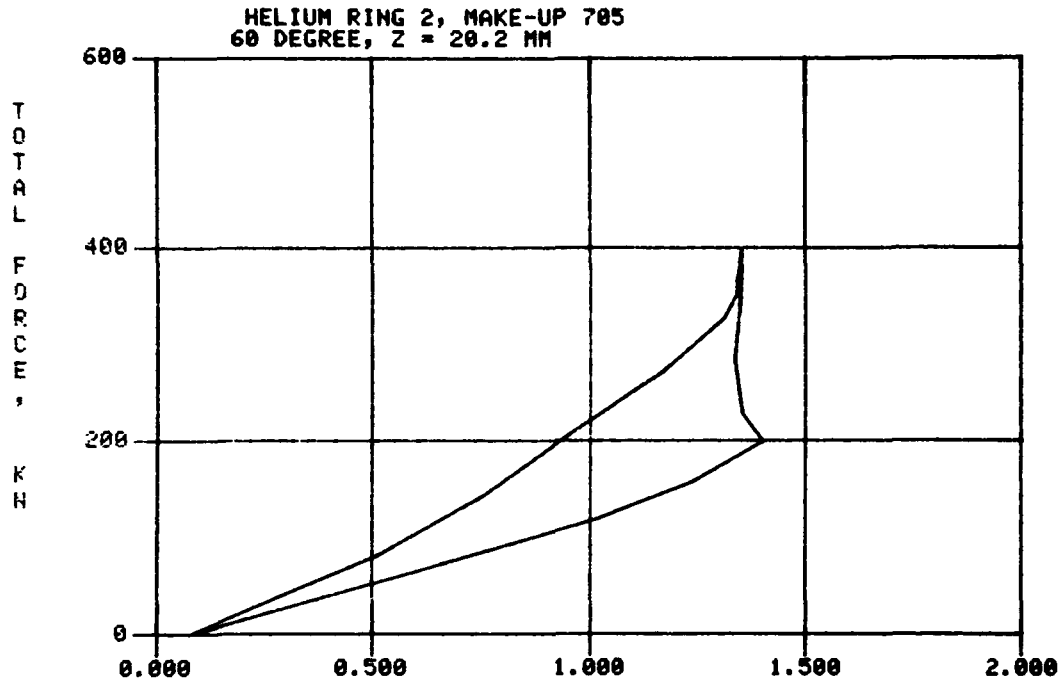

HELIUM RING 2, MAKE-UP 705
30 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN

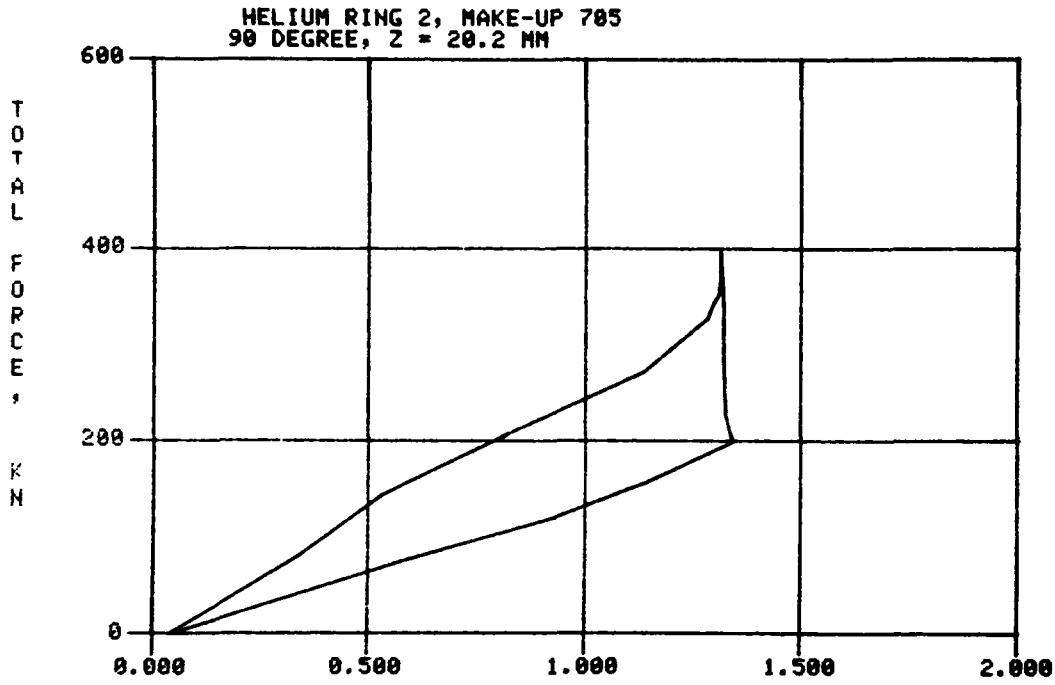

HELIUM RING 2, MAKE-UP 705
60 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN

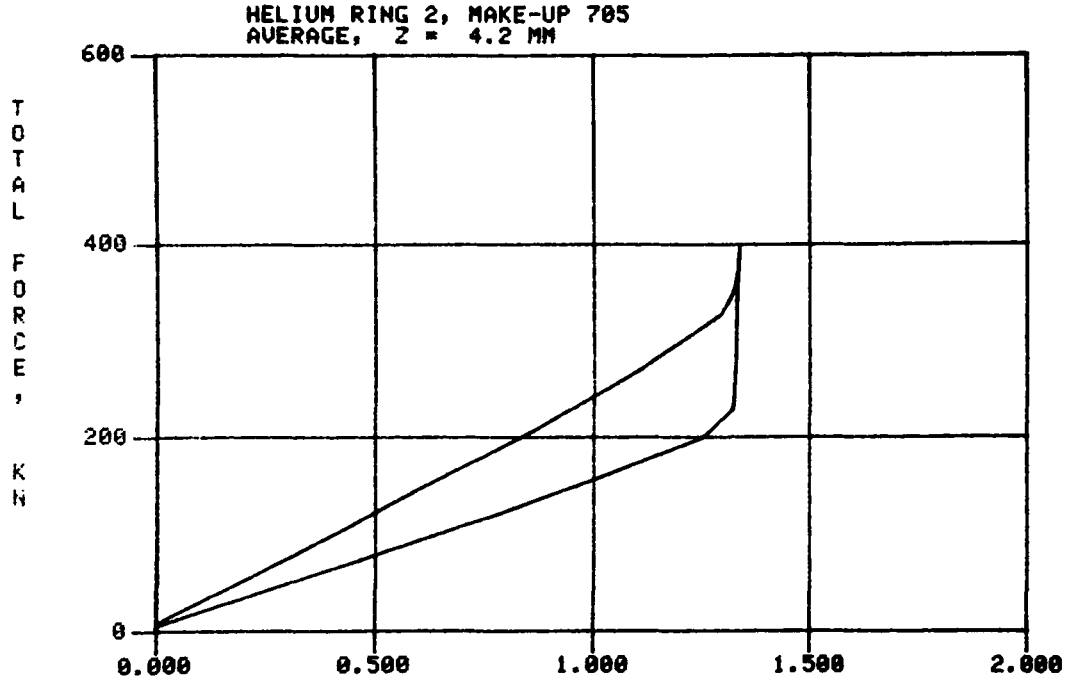

HELIUM RING 2, MAKE-UP 705
90 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN

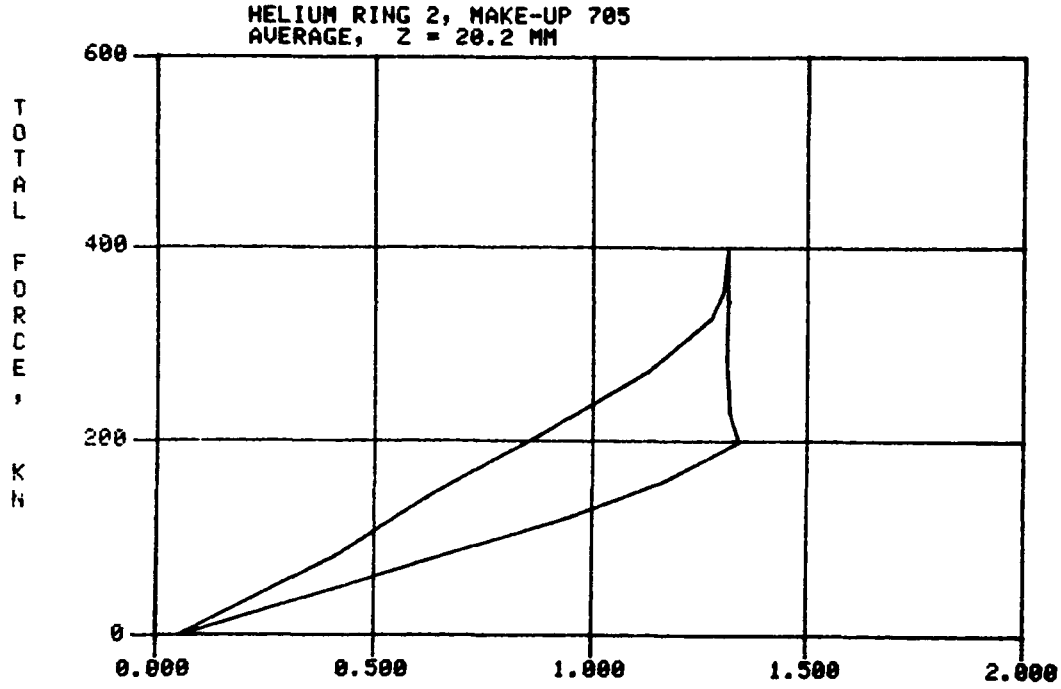

HELIUM RING 2, MAKE-UP 705
0 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


HELIUM RING 2, MAKE-UP 705
30 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


HELIUM RING 2, MAKE-UP 705
60 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


HELIUM RING 2, MAKE-UP 705
90 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


HELIUM RING 2, MAKE-UP 705
AVERAGE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


HELIUM RING 2, MAKE-UP 705
AVERAGE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN

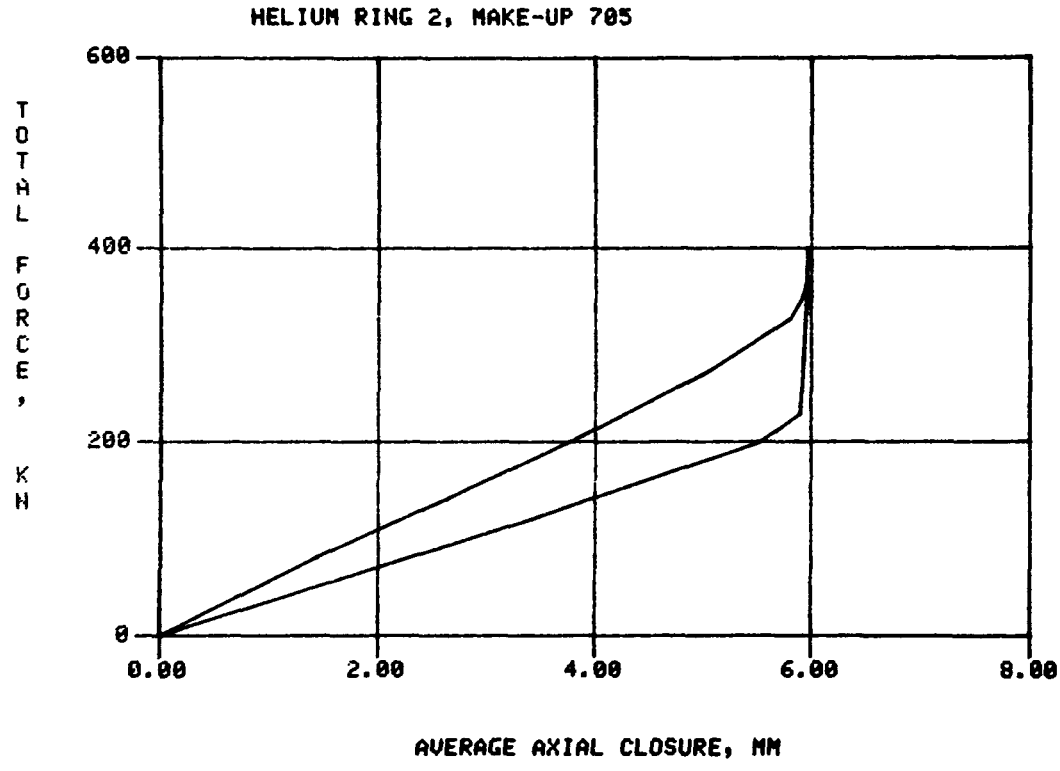

HELIUM RING 2, MAKE-UP 705
TOTAL FORCE, KN
600
400
200
0
0.00
2.00
4.00
6.00
8.00
AVERAGE AXIAL CLOSURE, MM

TABLE . DATA FROM TEST 706 SCAN 1. PRESSURE .0 KPA
AVERAGE TEMPERATURE 294.2 K. TIME 335 11/10/14

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		-0.				-0.	-0.	-0.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		0.00	0.00	0.00	0.00	0.00	0.00	0.00
STRAIN UM/M								
AXIAL	U	345.	64.	32.	-8.			108.
HOOP	U	-56.	-96.	-112.	-64.			-82.
COMBINED	U	349.	116.	117.	65.			162.
AXIAL	L	0.	232.	-152.	-168.			-22.
HOOP	L	-104.	-104.	449.	-56.			46.
COMBINED	L	104.	255.	474.	178.			253.

COMMENTS NO FORCE ON SEAL
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 706 SCAN 2. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.2 K. TIME 335 13/23/59

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		27.				26.	26.	27.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		1.32	1.29	1.23	1.26	1.30	1.42	1.30
STRAIN UM/M								
AXIAL	U	341.	128.	120.	32.			160.
HOOP	U	-425.	-658.	-714.	-553.			-587.
COMBINED	U	559.	670.	724.	554.			626.
AXIAL	L	-273.	96.	-329.	-449.			-239.
HOOP	L	-489.	-610.	-112.	-465.			-419.
COMBINED	L	560.	617.	347.	647.			543.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 706 SCAN 3. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.2 K. TIME 335 13/27/15

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		47.				47.	48.	48.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		2.97	2.78	2.73	2.75	2.94	4.32	3.08
STRAIN UM/M								
AXIAL	U	385.	176.	168.	72.			201.
HOOP	U	-794.	-1051.	-1139.	-954.			-984.
COMBINED	U	892.	1065.	1151.	957.			1014.
AXIAL	L	-425.	-48.	-465.	-585.			-381.
HOOP	L	-858.	-978.	-473.	-834.			-786.
COMBINED	L	958.	980.	664.	1019.			905.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 706 SCAN 4. PRESSURE .0 KPA
AVERAGE TEMPERATURE 294.9 K. TIME 335 13/30/18

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		69.				69.	68.	69.
DIAMETER								
MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE								
MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		4.27	4.19	4.16	4.14	4.21	5.16	4.35
STRAIN (UM/M								
AXIAL	U	449.	217.	201.	88.			239.
HOOP	U	-1251.	-1444.	-1420.	-1227.			-1335.
COMBINED	U	1329.	1460.	1434.	1230.			1363.
AXIAL	L	-569.	-176.	-618.	-746.			-527.
HOOP	L	-1243.	-1331.	-834.	-1171.			-1145.
COMBINED	L	1367.	1343.	1038.	1388.			1284.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 706 SCAN 5. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.2 K. TIME 335 13/33/39

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		91.				92.	92.	91.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		5.54	5.46	5.40	5.36	5.39	6.26	5.57
STRAIN UM/M								
AXIAL	U	513.	225.	217.	96.			263.
HOOP	U	-1764.	-1740.	-1748.	-1548.			-1700.
COMBINED	U	1838.	1755.	1762.	1551.			1726.
AXIAL	L	-698.	-323.	-778.	-874.			-670.
HOOP	L	-1644.	-1700.	-1187.	-1500.			-1508.
COMBINED	L	1736.	1732.	1419.	1736.			1668.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 706 SCAN 6, PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.2 K. TIME 335 13/36/44

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		108.				107.	107.	107.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		6.37	6.29	6.16	6.05	6.00	6.78	6.28
STRAIN UM/M								
AXIAL	U	545.	249.	233.	48.			279.
HOOP	U	-2937.	-1949.	-2021.	-1700.			-1927.
COMBINED	U	2109.	1965.	2034.	1703.			1953.
AXIAL	L	-794.	-417.	-874.	-970.			-764.
HOOP	L	-1869.	-1933.	-1452.	-1708.			-1740.
COMBINED	L	2030.	1977.	1695.	1965.			1917.

COMMENTS

ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 706 SCAN 7. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.2 K. TIME 335 13/39/38

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		110.				111.	112.	111.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		6.49	6.46	6.32	6.20	6.13	6.80	6.40
STRAIN UM/M								
AXIAL	U	537.	257.	241.	88.			281.
HOOP	U	-2053.	-1981.	-2053.	-1708.			-1949.
COMBINED	U	2122.	1997.	2067.	1711.			1974.
AXIAL	L	-810.	-441.	-890.	-978.			-780.
HOOP	L	-1999.	-1973.	-1476.	-1740.			-1774.
COMBINED	L	2074.	2022.	1723.	1997.			1954.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 706 SCAN 8. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.2 K. TIME 335 13/43/11

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		113.				113.	117.	114.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		6.57	6.56	6.43	6.30	6.21	6.81	6.48
STRAIN UM/M								
AXIAL	U	537.	249.	233.	96.			279.
HOOP	U	-2077.	-1997.	-2051.	-1724.			-1965.
COMBINED	U	2146.	2012.	2074.	1727.			1990.
AXIAL	L	-826.	-441.	-898.	-994.			-790.
HOOP	L	-1917.	-1907.	-1508.	-1756.			-1794.
COMBINED	L	2087.	2045.	1755.	2018.			1976.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 706 SCAN 9. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.2 K. TIME 335 13/46/12

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		116.				116.	116.	116.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		6.76	6.79	6.67	6.51	6.37	6.81	6.65
STRAIN UM/M								
AXIAL	U	537.	257.	233.	88.			279.
HOOP	U	-2093.	-2053.	-2077.	-1732.			-1989.
COMBINED	U	2161.	2069.	2090.	1735.			2014.
AXIAL	L	-842.	-465.	-906.	-1011.			-806.
HOOP	L	-1957.	-2037.	-1532.	-1768.			-1829.
COMBINED	L	2130.	2090.	1780.	2054.			2013.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 706 SCAN 10. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.2 K. TIME 335 13/51/55

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		119.				118.	118.	118.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		6.93	6.98	6.86	6.68	6.48	6.81	6.79
STRAIN UM/M								
AXIAL	U	545.	257.	225.	80.			277.
HOOP	U	-2109.	-2101.	-2077.	-1740.			-2007.
COMBINED	U	2179.	2117.	2089.	1742.			2032.
AXIAL	L	-958.	-473.	-914.	-1019.			-816.
HOOP	L	-1897.	-2077.	-1556.	-1821.			-1863.
COMBINED	L	2174.	2130.	1805.	2046.			2049.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 706 SCAN 11. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.2 K. TIME 335 13/53/40

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		123.				132.	126.	127.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		7.03	7.09	6.98	6.79	6.57	6.83	6.88
STRAIN UM/M								
AXIAL	U	537.	273.	217.	64.			273.
HOOP	U	-2133.	-2141.	-2093.	-1756.			-2031.
COMBINED	U	2200.	2159.	2104.	1758.			2055.
AXIAL	L	-274.	-481.	-914.	-1019.			-922.
HOOP	L	-2029.	-2101.	-1572.	-1853.			-1889.
COMBINED	L	2209.	2156.	1819.	2114.			2074.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 706 SCAN 12. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.2 K. TIME 335 13/57/36

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		131.				131.	131.	131.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		7.13	7.19	7.04	6.83	6.59	6.84	6.93
STRAIN UM/M								
AXIAL	U	529.	265.	217.	64.			269.
HOOP	U	-2117.	-2165.	-2043.	-1772.			-2037.
COMBINED	U	2182.	2182.	2104.	1774.			2060.
AXIAL	L	-582.	-489.	-930.	-1019.			-830.
HOOP	L	-2021.	-2117.	-1588.	-1861.			-1997.
COMBINED	L	2265.	2173.	1840.	2121.			2085.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 706 SCAN 13. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.2 K. TIME 335 14/01/23

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		143.				135.	133.	137.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		7.17	7.23	7.07	6.85	6.60	6.85	6.96
STRAIN UM/M								
AXIAL	U	529.	257.	217.	80.			271.
HOOP	U	-2117.	-2165.	-2101.	-1780.			-2041.
COMBINED	U	2192.	2181.	2112.	1742.			2064.
AXIAL	L	-874.	-489.	-930.	-1011.			-826.
HOOP	L	-2037.	-2125.	-1696.	-1877.			-1909.
COMBINED	L	2217.	2191.	1847.	2131.			2094.

COMMENTS LEAK RATE EXCEEDS 2X10E-4 ATM CC/S
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 706 SCAN 14. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.2 K. TIME 335 14/27/28

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		58.				58.	56.	57.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		6.70	6.85	6.75	6.47	6.16	6.35	6.55
STRAIN UM/M								
AXIAL	U	417.	201.	184.	88.			223.
HOOP	U	-1756.	-1877.	-1917.	-1748.			-1825.
COMBINED	U	1805.	1887.	1926.	1751.			1842.
AXIAL	L	-794.	-401.	-850.	-922.			-742.
HOOP	L	-1788.	-1893.	-1428.	-1748.			-1714.
COMBINED	L	1957.	1935.	1662.	1977.			1882.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 706 SCAN 15. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.2 K. TIME 335 14/29/46

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		49.				49.	47.	49.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		6.07	6.42	6.11	5.83	5.49	5.74	5.94
STRAIN UM/M								
AXIAL	U	401.	168.	176.	80.			207.
HOOP	U	-1452.	-1612.	-1700.	-1532.			-1574.
COMBINED	U	1506.	1621.	1709.	1534.			1593.
AXIAL	L	-690.	-321.	-762.	-834.			-652.
HOOP	L	-1572.	-1676.	-1203.	-1540.			-1498.
COMBINED	L	1717.	1707.	1424.	1751.			1650.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 706 SCAN 16. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.2 K. TIME 335 14/32/29

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		34.				32.	32.	33.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		4.40	4.53	4.43	4.11	3.78	4.06	4.22
STRAIN UM/M								
AXIAL	U	377.	128.	136.	48.			172.
HOOP	U	-954.	-1131.	-1203.	-1027.			-1079.
COMBINED	U	1026.	1138.	1211.	1028.			1101.
AXIAL	L	-489.	-112.	-545.	-650.			-449.
HOOP	L	-1059.	-1147.	-666.	-1019.			-972.
COMBINED	L	1166.	1152.	861.	1208.			1097.

COMMENTS
ALL DATA CORRECTED TO 294.5 K.

TABLE . DATA FROM TEST 706 SCAN 17. PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.2 K. TIME 335 14/35/28

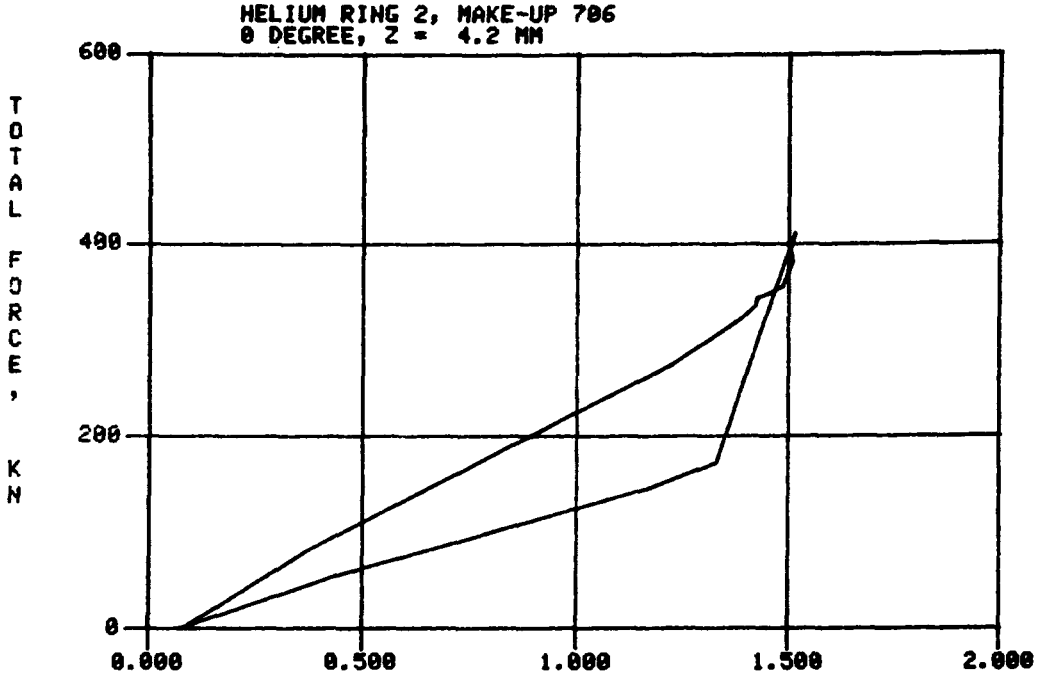
ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE. KNT		17.				19.	19.	18.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		2.79	2.94	2.88	2.59	2.26	2.56	2.67
STRAIN UM/M								
AXIAL	U	353.	112.	80.	0.			136.
HOOP	U	-465.	-642.	-698.	-553.			-589.
COMBINED	U	584.	651.	702.	553.			623.
AXIAL	L	-289.	56.	-361.	-457.			-263.
HOOP	L	-595.	-666.	-176.	-545.			-493.
COMBINED	L	653.	668.	402.	712.			609.

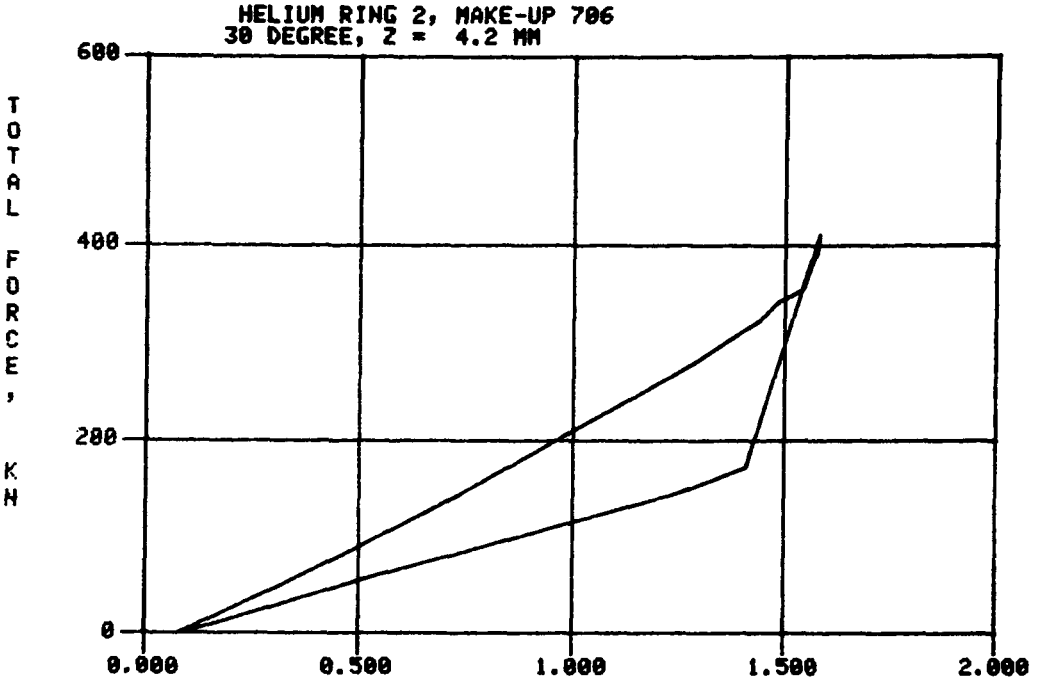
COMMENTS
ALL DATA CORRECTED TO 294.5 K.

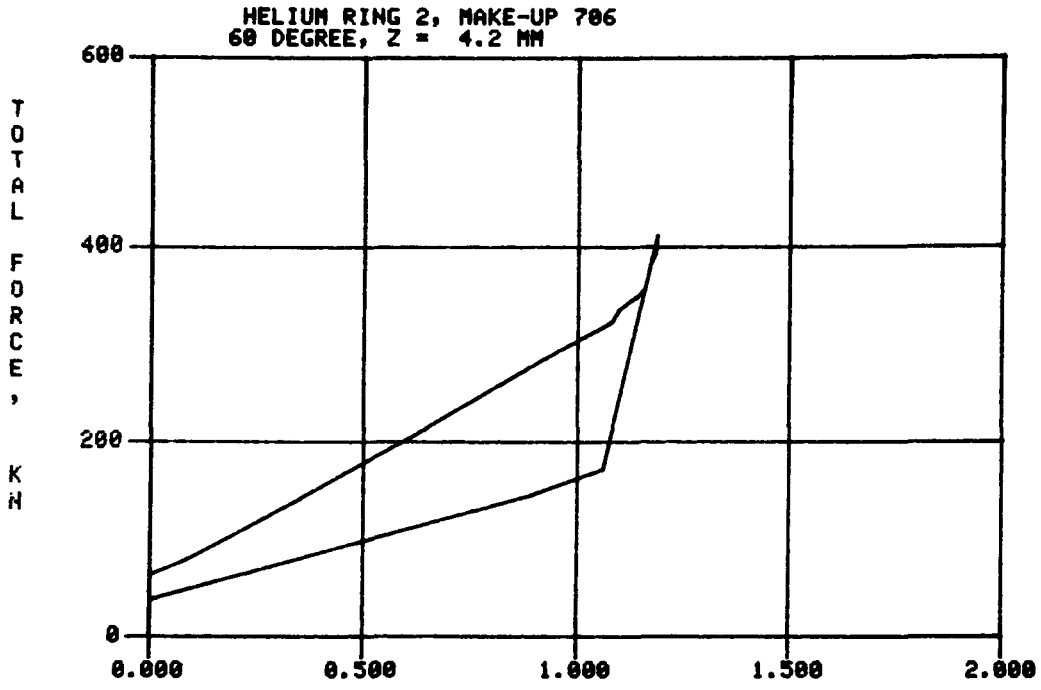
TABLE , DATA FROM TEST 706 SCAN 18, PRESSURE .0 KPA
AVERAGE TEMPERATURE 295.2 K. TIME 335 14/37/10

ANGULAR POSITION DEGREES		0	30	60	90	120	240	AVRG
FORCE, KNT		-0.				-0.	-0.	-0.
DIAMETER MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
DIAMETRIAL CHANGE MM	U	0.00	0.00	0.00	0.00			0.00
	L	0.00	0.00	0.00	0.00			0.00
AXIAL CLOSURE MM		0.00	0.00	0.00	0.00	0.00	0.00	0.00
STRAIN UM/M								
AXIAL	U	393.	64.	40.	-24.			118.
HOOP	U	-40.	-96.	-112.	-64.			-78.
COMBINED	U	395.	116.	119.	69.			175.
AXIAL	L	24.	249.	-160.	-168.			-14.
HOOP	L	-96.	-120.	393.	-32.			36.
COMBINED	L	99.	276.	424.	171.			243.

COMMENTS NO FORCE ON SEAL
ALL DATA CORRECTED TO 294.5 K.


HELIUM RING 2, MAKE-UP 706
0 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


HELIUM RING 2, MAKE-UP 706
30 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


HELIUM RING 2, MAKE-UP 706
60 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
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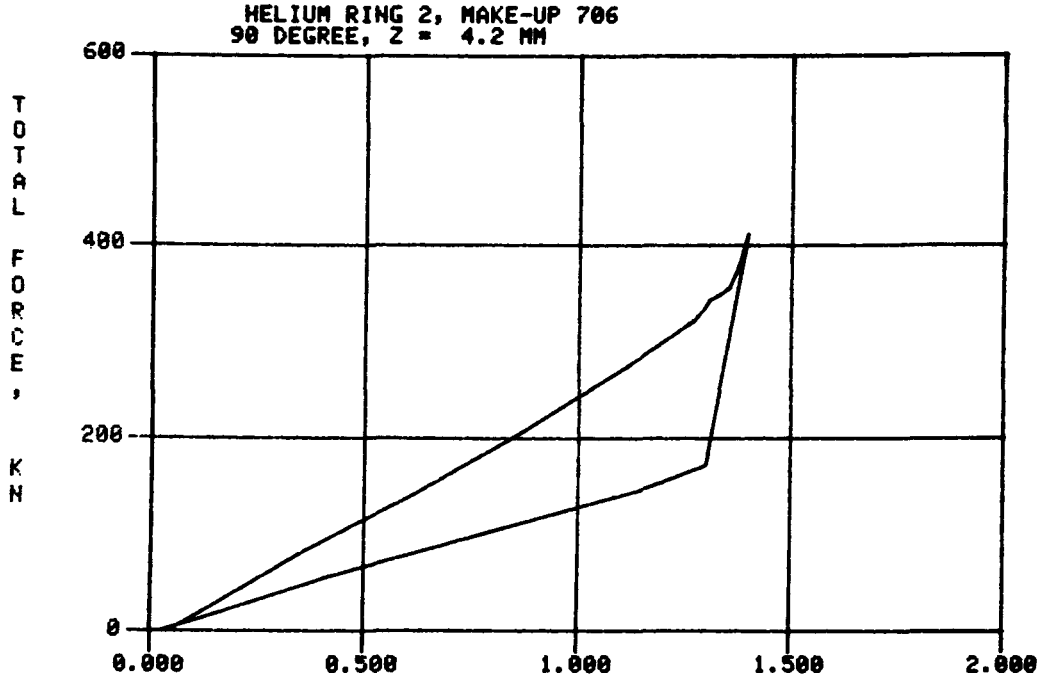
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


HELIUM RING 2, MAKE-UP 706
90 DEGREE, Z = 4.2 MM
TOTAL FORCE, KN
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400
200
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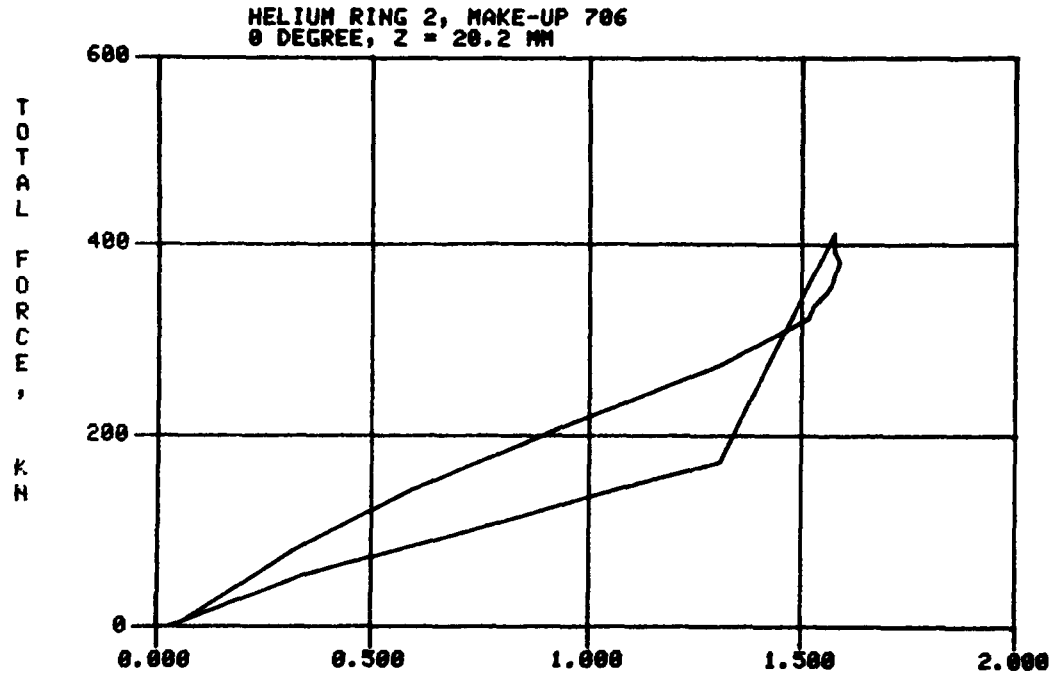
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


HELIUM RING 2, MAKE-UP 706
0 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
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400
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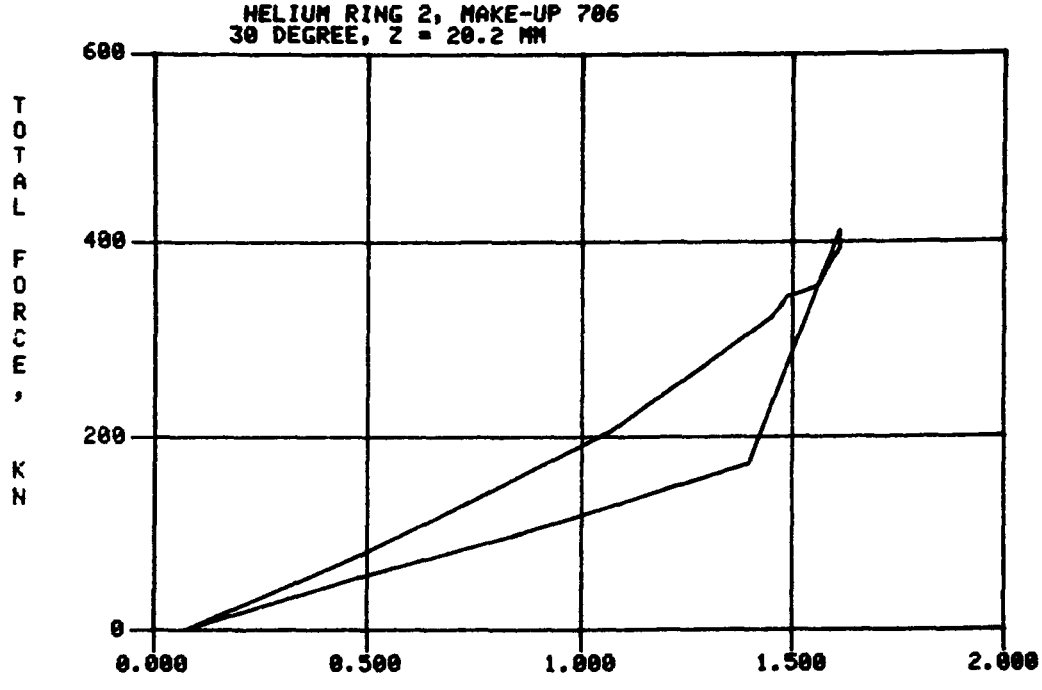
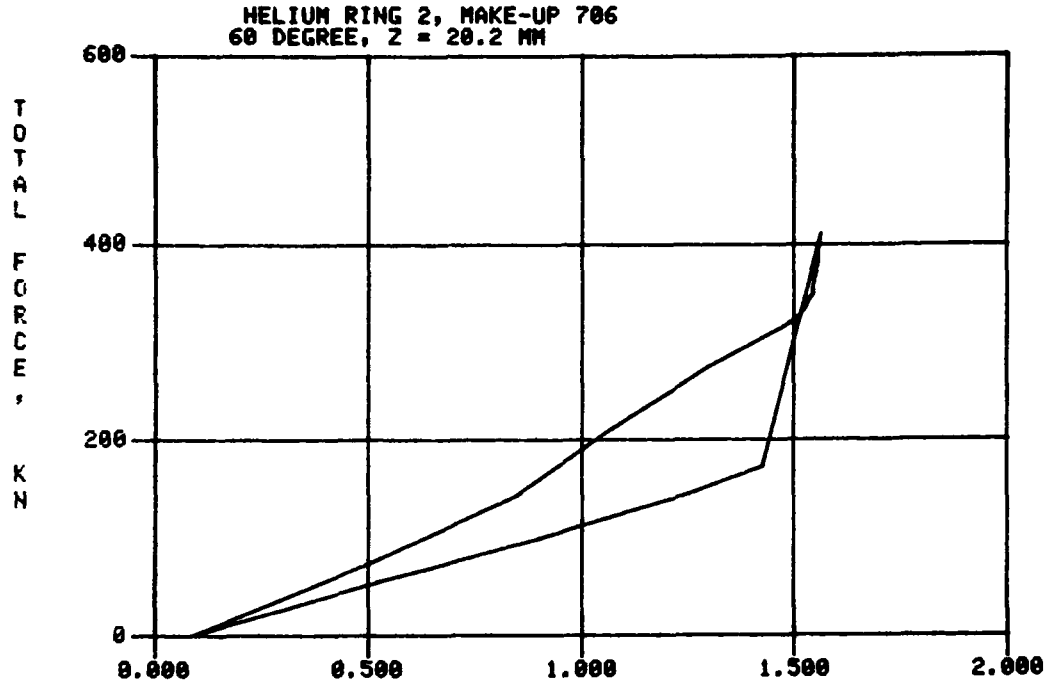
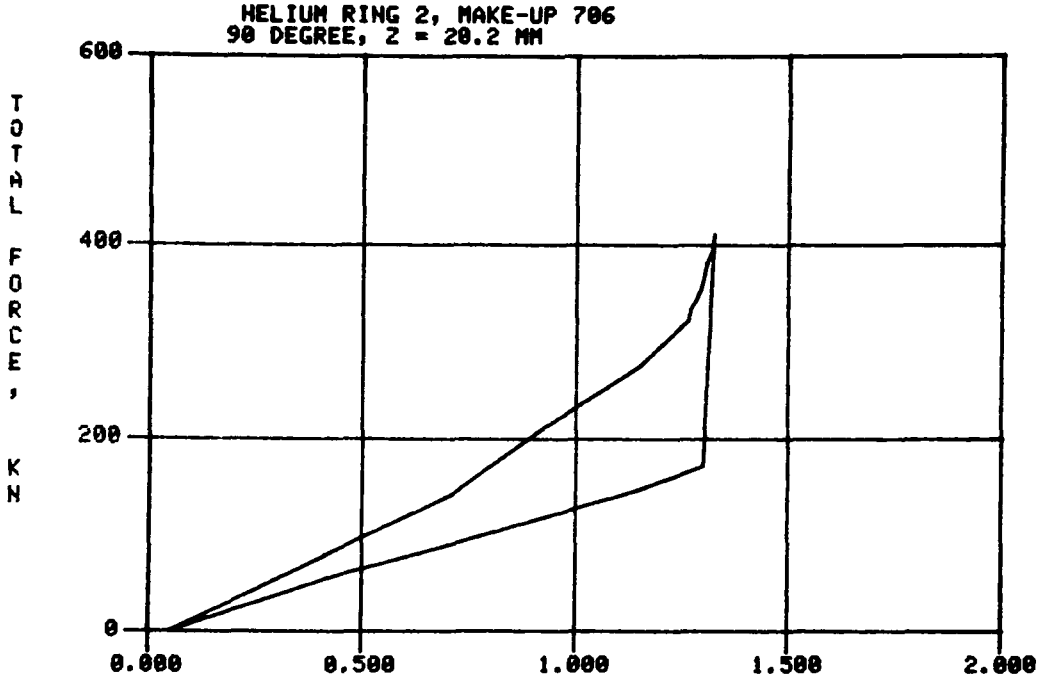
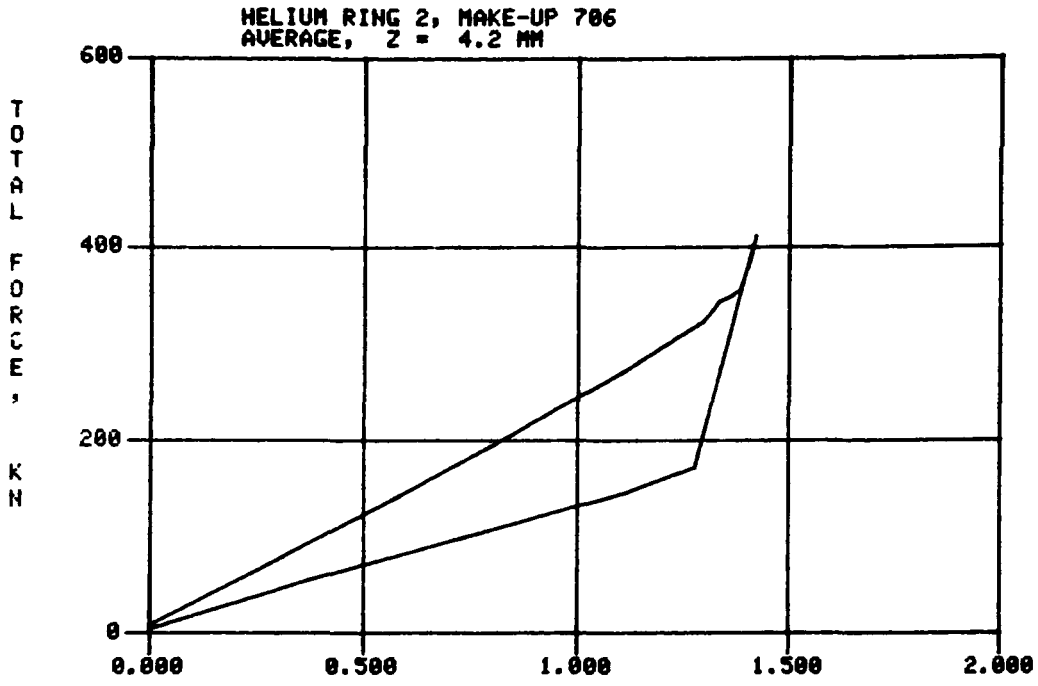
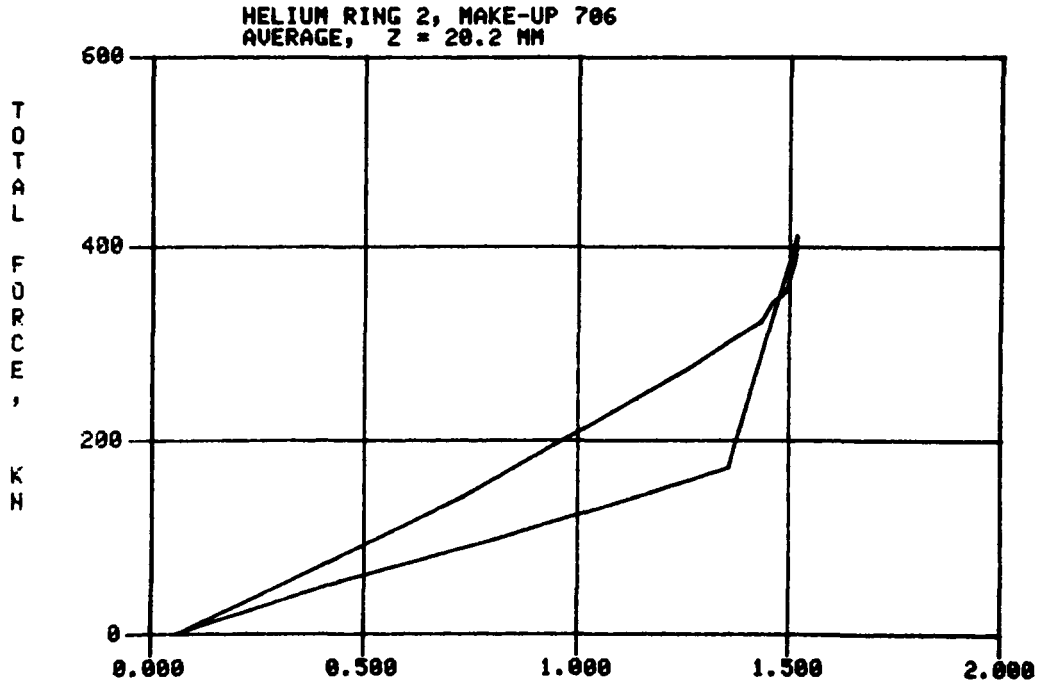
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN

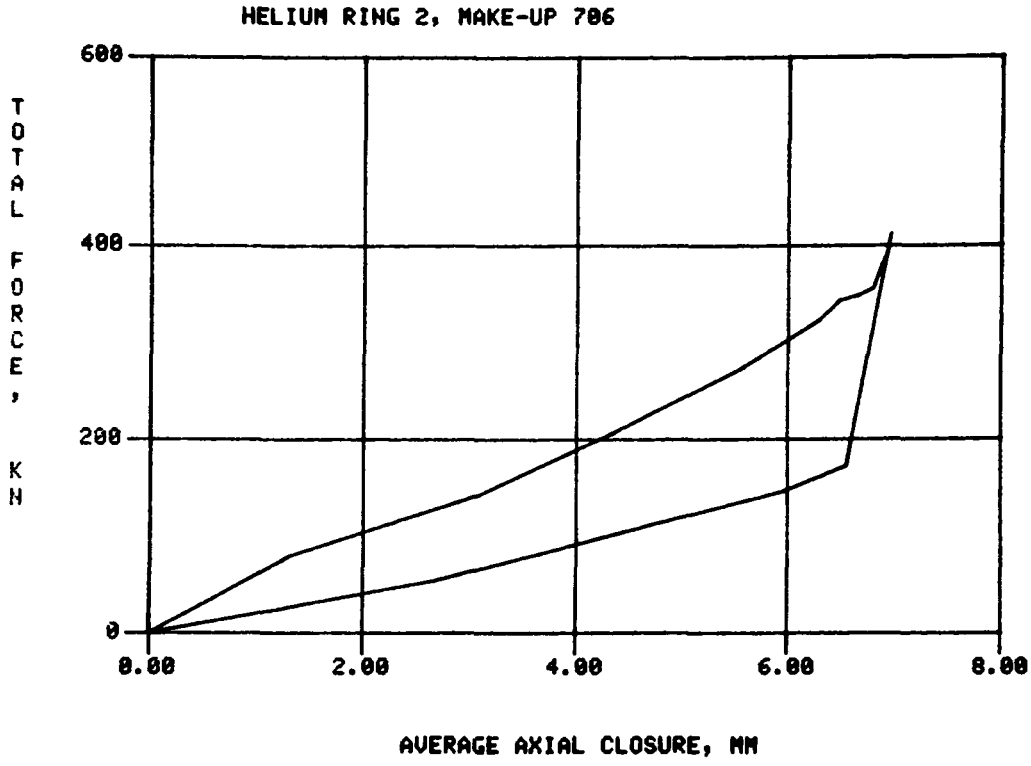

HELIUM RING 2, MAKE-UP 706
30 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


HELIUM RING 2, MAKE-UP 706
60 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


HELIUM RING 2, MAKE-UP 706
90 DEGREE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


HELIUM RING 2, MAKE-UP 706
AVERAGE, Z = 4.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


HELIUM RING 2, MAKE-UP 706
AVERAGE, Z = 20.2 MM
TOTAL FORCE, KN
600
400
200
0
0.000
0.500
1.000
1.500
2.000
TOTAL DIAM REDUCTION, MM
BASED ON HOOP STRAIN


HELIUM RING 2, MAKE-UP 706
TOTAL FORCE, KN
600
400
200
0
0.00
2.00
4.00
6.00
8.00
AVERAGE AXIAL CLOSURE, MM

APPENDIX C

Leak Rate Data

Table C-1. Leak Rate Data

Test	Upstream Absolute Pressure (atm)	Actual Helium Leak Rate (10^{-6} atm cc/s)	Temperature (°C)	Equivalent Air Leak Rate (10^{-6} atm cc/s)
401	0.82	35	26	31
402	0.82	18	25	18
403	0.82	25	25	23
404	0.82	23	23	21
502	2.18	25	22	6.4
503	2.18	20	22	5.2
504	1.64	250	23	81
505	2.18	16	22	4.2
506	1.64	250	23	81
507	2.18	32	24	13
508	2.18	53	24	4.2
509	2.18	16	24	4.2
512	2.18	64	25	16
513	2.18	74	24	18
517	2.18	9	25	2.4
519A	2.18	14	25	3.7
519B	2.18	13	25	3.4
520	2.18	20	25	5.2
601	1.64	180	24	59
602	2.18	80	24	20
603	2.18	11	24	2.9
604	2.18	87	24	21
605	2.18	43	24	11
608*	2.18	5.4	24	1.5
609	2.18	3.4	24	0.9
610	2.18	3.4	24	0.9
611A	2.18	5.2	24	1.4
611B	2.18	5.2	24	1.4
612	2.18	4.6	24	1.3
613	2.18	5.4	24	1.5
614	2.18	4.6	24	1.3
615A	2.18	4.0	24	1.1
615B	2.18	4.0	24	1.1
616	2.18	7.7	24	2.1
701	2.18	< 1	21	<0.3
702	2.18	60	23	15
703	2.18	140	23	34
705	2.18	200	22	48

*O-ring size change

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